Direzione Progettazione e Realizzazione Lavori

E78 GROSSETO - FANO
Tratto Nodo di Arezzo – Selci – Lama (E45) – Palazzo del Pero – Completamento

PROGETTO DEFINITIVO

FI 509

ANAS - DIREZIONE PROGETTAZIONE E REALIZZAZIONE LAVORI

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(Mandataria)
GPI INGEGNERIA
GESTIONE PROGETTI INGEGNERIA srl

(Mandante)
cooprogetti

(Mandante)
engeko

(Mandante)
SAM
Studio di Architettura e Ingegneria Moderna

IL PROGETTISTA RESPONSABILE DELL'INNTEGRAZIONE DELLE PRESTAZIONI SPECIALISTICHE. (DPR207/10 ART 15 COMMA 12) :

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STUDI ED INDAGINI

Geotecnica

Relazione geotecnica–allegati

CODICE PROGETTO	NOME FILE	REVISIONE	SCALA
PROGETTO: DPAN259 / LIV.PROG: D / ANNO: 21	CODICE ELAB.: T00GE00GETRE02	A	1:2.000/1:200

REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO
D					
C					
B					
A	Emissione	Maggio '22	Colleselli	Signorelli	Guiducci

1. NOTA

LA STRADA DI COLLEGAMENTO S.R.73 -RACCORDO A1 AREZZO-BATTIFOLLE NON È OGGETTO DELLA PRESENTE VERIFICA DI OTTEMPERANZA

LA STRADA DI COLLEGAMENTO E 78 - S.R. 71 NON È OGGETTO DELLA PRESENTE VERIFICA DI OTTEMPERANZA

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Asse Principale 1
Liquefazione
Sondaggi AS01÷AS04, S1÷S2-94, SD÷SE, S1÷S11-99
Report Creation Date: 2022/05/10, 14:43:41

Table of Contents

Settle3 Analysis Information

A.P. 1 liquefazione

Project Settings

Document Name	A.P. 1 liquefazione.s3z
Date Created	04/08/2021, 15:35:21
Stress Computation Method	Boussinesq
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name
1	Stage 1

Results

Time taken to compute: 0.0613138 seconds

Stage: Stage 1

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	394.37
Effective Stress XX [kPa]	0	394.37
Effective Stress YY [kPa]	0	394.37
Total Stress ZZ [kPa]	0	620
Total Stress XX [kPa]	0	620
Total Stress YY [kPa]	0	620
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	225.63
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	0.14	394.248
Over-consolidation Ratio	1	1
Void Ratio	0	0
Hydroconsolidation Settlement [mm]	0	0
Undrained Shear Strength	0	0

Liquefaction

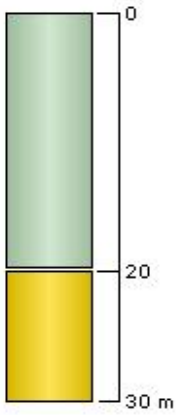
Insitu Type	Standard Penetration Test (SPT)
General Settings	
Max. Earthquake Acceleration [g]	0.277
Earthquake Magnitude	5.5
Slope Angle [°]	0
Find FS using Probability of Liquefaction of	15%
Calculate Settlement for FS <	1
Depth Correction	
Depth Correction (Cn)	Idriss and Boulanger (2004)
Use Sampling Method (Cs)	No
Borehole Diameter (Cb)	1
Hammer Energy Ratio (Ce)	1
Use Cetin et al. (Cr)	Yes
Advanced Settings	
Magnitude Scaling Factor (MSF)	Idriss and Boulanger (2014)
Strength Reduction Factor (RD)	Idriss (1999)
Relative Density Estimation from SPT (Dr)	Idriss and Boulanger (2003)
Fines Content Correction	Idriss and Boulanger (2008)
K Sigma	Idriss and Boulanger (2008)
K Alpha	None

Input Data for Liquefaction

Depth [m]	SPT N	FC [%]
2	23	50
2.5	32	50
2.6	20	25
2.7	12	50
3.3	25	50
3.4	12	25
3.45	30	50
3.5	40	50
3.8	8	50
4.2	19	25
4.3	28	50
4.4	53	50
4.5	29	50
4.6	28	50
4.7	40	50
4.8	26	50
4.9	20	50
5	26	50
5.1	27	50
6.2	6	50
6.3	36	50
6.4	38	25
6.5	22	25
6.6	56	25
6.7	22	25
7	56	50
7.5	33	50
7.6	39	50
8	21	50
8.3	29	50
9	26	50
9.1	28	50
9.3	37	50
9.35	20	25
9.5	33	25
9.6	67	25
9.7	20	25
10	23	25
10.5	28	25
12.5	38	25
13	79	25
13.1	40	25
16.5	30	50
17.5	19	50
21	59	25
25.5	54	25

Soil Layers

Layer #	Type	Thickness [m]	Depth [m]
1	Limo (FL,AT)	20	0
2	AC	10	20



Soil Properties

Property	Limo (FL,AT)	AC
Color		
Unit Weight [kN/m3]	20	22
Saturated Unit Weight [kN/m3]	20	22
K0	1	1
Undrained Su A [kN/m2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Piezo Line ID	1	1
Fines Content [%]	50	15.9
D50 [mm]	2	2
Liquefaction Prone	Yes	No

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	7 m

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Asse Principale 2
Liquefazione
Sondaggi AS10, SL÷SM, S13-99, S18÷S19-99
Report Creation Date: 2022/05/10, 14:48:14

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Settle3 Analysis Information

A.P. 2 liquefazione

Project Settings

Document Name	A.P. 2 liquefazione.s3z
Date Created	04/08/2021, 15:35:21
Stress Computation Method	Boussinesq
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name
1	Stage 1

Results

Time taken to compute: 0.0571848 seconds

Stage: Stage 1

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	310.32
Effective Stress XX [kPa]	0	310.32
Effective Stress YY [kPa]	0	310.32
Total Stress ZZ [kPa]	0	585
Total Stress XX [kPa]	0	585
Total Stress YY [kPa]	0	585
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	274.68
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	1.95	310.184
Over-consolidation Ratio	1	1
Void Ratio	0	0
Hydroconsolidation Settlement [mm]	0	0
Undrained Shear Strength	0	0

Liquefaction

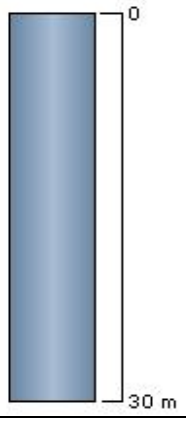
Insitu Type	Standard Penetration Test (SPT)
General Settings	
Max. Earthquake Acceleration [g]	0.277
Earthquake Magnitude	5.5
Slope Angle [°]	0
Find FS using Probability of Liquefaction of	15%
Calculate Settlement for FS <	1
Depth Correction	
Depth Correction (Cn)	Idriss and Boulanger (2004)
Use Sampling Method (Cs)	No
Borehole Diameter (Cb)	1
Hammer Energy Ratio (Ce)	1
Use Cetin et al. (Cr)	Yes
Advanced Settings	
Magnitude Scaling Factor (MSF)	Idriss and Boulanger (2014)
Strength Reduction Factor (RD)	Idriss (1999)
Relative Density Estimation from SPT (Dr)	Idriss and Boulanger (2003)
Fines Content Correction	Idriss and Boulanger (2008)
K Sigma	Idriss and Boulanger (2008)
K Alpha	None

Input Data for Liquefaction

Depth [m]	SPT N
2.45	10
3	45
3.1	20
3.5	8
4	47
4.2	46
4.8	15
5.4	49
6	18
6.8	45
7.9	52
8	25
8.1	19
8.2	51
9	70
9.2	55
11	65
11.6	79
12.7	73
12.8	70
13	27
14.1	71
14.2	59
14.3	30
14.4	50
15	71
16	22
16.4	49
17	67
17.3	65
17.5	75
19	18
19.5	39
20	79
20.5	46
23	38
23.8	17
24	82
29.5	70

Soil Layers

Layer #	Type	Thickness [m]	Depth [m]
1	Limo sabbioso (AT)	30	0



Soil Properties

Property	Limo sabbioso (AT)
Color	
Unit Weight [kN/m3]	19.5
Saturated Unit Weight [kN/m3]	19.5
K0	1
Undrained Su A [kN/m2]	0
Undrained Su S	0.2
Undrained Su m	0.8
Piezo Line ID	1
Fines Content [%]	40
D50 [mm]	2
Liquefaction Prone	Yes

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	2 m

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Strada di collegamento SR73 - Raccordo A1 Arezzo-Battifolle 1
Liquefazione
Sondaggi S01/06, CS01
Report Creation Date: 2022/05/10, 14:51:02

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Settle3 Analysis Information

SR73 1 liquefazione

Project Settings

Document Name	SR73 1 liquefazione.s3z
Date Created	04/08/2021, 15:35:21
Stress Computation Method	Boussinesq
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name
1	Stage 1

Results

Time taken to compute: 0.0552189 seconds

Stage: Stage 1

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	460.25
Effective Stress XX [kPa]	0	282.783
Effective Stress YY [kPa]	0	282.783
Total Stress ZZ [kPa]	0	705.5
Total Stress XX [kPa]	0	443.157
Total Stress YY [kPa]	0	443.157
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	245.25
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	0.95	460.166
Over-consolidation Ratio	1	1
Void Ratio	0	0
Hydroconsolidation Settlement [mm]	0	0
Undrained Shear Strength	0	0

Liquefaction

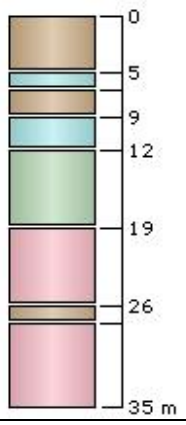
Insitu Type	Standard Penetration Test (SPT)
General Settings	
Max. Earthquake Acceleration [g]	0.277
Earthquake Magnitude	5.5
Slope Angle [°]	0
Find FS using Probability of Liquefaction of	15%
Calculate Settlement for FS <	1
Depth Correction	
Depth Correction (Cn)	Idriss and Boulanger (2004)
Use Sampling Method (Cs)	No
Borehole Diameter (Cb)	1
Hammer Energy Ratio (Ce)	1
Use Cetin et al. (Cr)	Yes
Advanced Settings	
Magnitude Scaling Factor (MSF)	Idriss and Boulanger (2014)
Strength Reduction Factor (RD)	Idriss (1999)
Relative Density Estimation from SPT (Dr)	Idriss and Boulanger (2003)
Fines Content Correction	Idriss and Boulanger (2008)
K Sigma	Idriss and Boulanger (2008)
K Alpha	None

Input Data for Liquefaction

Depth [m]	SPT N
3	21
4.9	28
10	23
14.2	30
16.5	30
21	59
21.5	42
25.5	54

Soil Layers

Layer #	Type	Thickness [m]	Depth [m]
1	Argilla (FL)	5	0
2	Sabbia (FL, AT)	1.5	5
3	Argilla (FL)	2.5	6.5
4	Sabbia (FL, AT)	3	9
5	Limo (FL,AT)	7	12
6	Ghiaia (FL)	7	19
7	Argilla (FL)	1.5	26
8	Ghiaia (FL)	7.5	27.5



Soil Properties

Property	Argilla (FL)	Limo (FL,AT)	Sabbia (FL, AT)	Ghiaia (FL)
Color				
Unit Weight [kN/m3]	19	20	20	21
Saturated Unit Weight [kN/m3]	19	20	20	21
K0	0.69	1	0.47	0.43
Undrained Su A [kN/m2]	0	0	0	0
Undrained Su S	0.2	0.2	0.2	0.2
Undrained Su m	0.8	0.8	0.8	0.8
Piezo Line ID	1	1	1	1
Fines Content [%]	10	50	15	20
D50 [mm]	2	2	2	2
Liquefaction Prone	No	Yes	Yes	No

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	10 m

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Strada di collegamento SR73 - Raccordo A1 Arezzo-Battifolle
Liquefazione
Sondaggi S02÷S03/06, CS02
Report Creation Date: 2022/05/10, 14:53:32

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Settle3 Analysis Information

SR73 2 liquefazione

Project Settings

Document Name	SR73 2 liquefazione.s3z
Date Created	04/08/2021, 15:35:21
Stress Computation Method	Boussinesq
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name
1	Stage 1

Results

Time taken to compute: 0.0731766 seconds

Stage: Stage 1

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	453.56
Effective Stress XX [kPa]	0	291.527
Effective Stress YY [kPa]	0	291.527
Total Stress ZZ [kPa]	0	689
Total Stress XX [kPa]	0	447.13
Total Stress YY [kPa]	0	447.13
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	235.44
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	0.88	452.945
Over-consolidation Ratio	1	1
Void Ratio	0	0
Hydroconsolidation Settlement [mm]	0	0
Undrained Shear Strength	0	0

Liquefaction

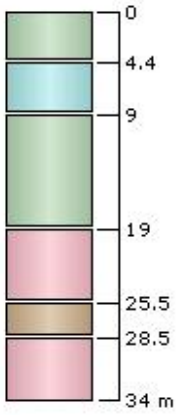
Insitu Type	Standard Penetration Test (SPT)
General Settings	
Max. Earthquake Acceleration [g]	0.277
Earthquake Magnitude	5.5
Slope Angle [°]	0
Find FS using Probability of Liquefaction of	15%
Calculate Settlement for FS <	1
Depth Correction	
Depth Correction (Cn)	Idriss and Boulanger (2004)
Use Sampling Method (Cs)	No
Borehole Diameter (Cb)	1
Hammer Energy Ratio (Ce)	1
Use Cetin et al. (Cr)	Yes
Advanced Settings	
Magnitude Scaling Factor (MSF)	Idriss and Boulanger (2014)
Strength Reduction Factor (RD)	Idriss (1999)
Relative Density Estimation from SPT (Dr)	Idriss and Boulanger (2003)
Fines Content Correction	Idriss and Boulanger (2008)
K Sigma	Idriss and Boulanger (2008)
K Alpha	None

Input Data for Liquefaction

Depth [m]	SPT N
4.4	37
4.5	14
6.5	29
7.3	17
8.5	30
12.5	14
17.5	25
19	47
21.5	56
21.7	100
23	100
23.5	49

Soil Layers

Layer #	Type	Thickness [m]	Depth [m]
1	Limo (FL,AT)	4.4	0
2	Sabbia (FL, AT)	4.6	4.4
3	Limo (FL,AT)	10	9
4	Ghiaia (FL)	6.5	19
5	Argilla (FL)	3	25.5
6	Ghiaia (FL)	5.5	28.5



Soil Properties

Property	Argilla (FL)	Limo (FL,AT)	Sabbia (FL, AT)	Ghiaia (FL)
Color				
Unit Weight [kN/m3]	19	20	20	21
Saturated Unit Weight [kN/m3]	19	20	20	21
K0	0.69	1	0.47	0.43
Undrained Su A [kN/m2]	0	0	0	0
Undrained Su S	0.2	0.2	0.2	0.2
Undrained Su m	0.8	0.8	0.8	0.8
Piezo Line ID	1	1	1	1
Fines Content [%]	10	50	15	20
D50 [mm]	2	2	2	2
Liquefaction Prone	No	Yes	Yes	No

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	10 m

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Strada di collegamento SR73 - Raccordo A1 Arezzo-Battifolle
Liquefazione
Sondaggi CS03
Report Creation Date: 2022/05/10, 14:55:43

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Settle3 Analysis Information

SR73 3 liquefazione

Project Settings

Document Name	SR73 3 liquefazione.s3z
Date Created	04/08/2021, 15:35:21
Stress Computation Method	Boussinesq
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name
1	Stage 1

Results

Time taken to compute: 0.061706 seconds

Stage: Stage 1

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	419.8
Effective Stress XX [kPa]	0	419.8
Effective Stress YY [kPa]	0	419.8
Total Stress ZZ [kPa]	0	616
Total Stress XX [kPa]	0	616
Total Stress YY [kPa]	0	616
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	196.2
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	0.2	419.702
Over-consolidation Ratio	1	1
Void Ratio	0	0
Hydroconsolidation Settlement [mm]	0	0
Undrained Shear Strength	0	0

Liquefaction

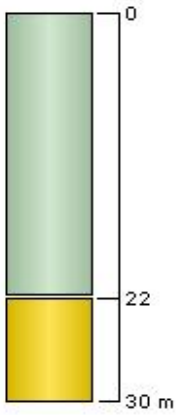
Insitu Type	Standard Penetration Test (SPT)
General Settings	
Max. Earthquake Acceleration [g]	0.289
Earthquake Magnitude	5.5
Slope Angle [°]	0
Find FS using Probability of Liquefaction of	15%
Calculate Settlement for FS <	1
Depth Correction	
Depth Correction (Cn)	Idriss and Boulanger (2004)
Use Sampling Method (Cs)	No
Borehole Diameter (Cb)	1
Hammer Energy Ratio (Ce)	1
Use Cetin et al. (Cr)	Yes
Advanced Settings	
Magnitude Scaling Factor (MSF)	Idriss and Boulanger (2014)
Strength Reduction Factor (RD)	Idriss (1999)
Relative Density Estimation from SPT (Dr)	Idriss and Boulanger (2003)
Fines Content Correction	Idriss and Boulanger (2008)
K Sigma	Idriss and Boulanger (2008)
K Alpha	None

Input Data for Liquefaction

Depth [m]	SPT N
4.9	13
14.2	17
21.5	58

Soil Layers

Layer #	Type	Thickness [m]	Depth [m]
1	Limo (FL,AT)	22	0
2	AC	8	22



Soil Properties

Property	Limo (FL,AT)	AC
Color		
Unit Weight [kN/m3]	20	22
Saturated Unit Weight [kN/m3]	20	22
K0	1	1
Undrained Su A [kN/m2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Piezo Line ID	1	1
Fines Content [%]	50	15.9
D50 [mm]	2	2
Liquefaction Prone	Yes	No

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	10 m

rocscience

Strada di collegamento SR73 - Raccordo A1 Arezzo-Battifolle
Liquefazione
Sondaggi S06÷S07/06, CS06÷CS09
Report Creation Date: 2022/05/10, 14:57:48

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Settle3 Analysis Information

SR73 4liquefazione

Project Settings

Document Name	SR73 4liquefazione.s3z
Date Created	04/08/2021, 15:35:21
Stress Computation Method	Boussinesq
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name
1	Stage 1

Results

Time taken to compute: 0.0718627 seconds

Stage: Stage 1

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	472.45
Effective Stress XX [kPa]	0	272.96
Effective Stress YY [kPa]	0	272.96
Total Stress ZZ [kPa]	0	717.7
Total Stress XX [kPa]	0	448.404
Total Stress YY [kPa]	0	448.404
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	245.25
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	1.06	472.252
Over-consolidation Ratio	1	1
Void Ratio	0	0
Hydroconsolidation Settlement [mm]	0	0
Undrained Shear Strength	0	0

Liquefaction

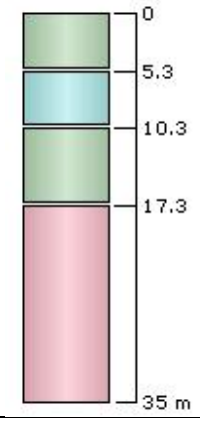
Insitu Type	Standard Penetration Test (SPT)
General Settings	
Max. Earthquake Acceleration [g]	0.277
Earthquake Magnitude	5.5
Slope Angle [°]	0
Find FS using Probability of Liquefaction of	15%
Calculate Settlement for FS <	1
Depth Correction	
Depth Correction (Cn)	Idriss and Boulanger (2004)
Use Sampling Method (Cs)	No
Borehole Diameter (Cb)	1
Hammer Energy Ratio (Ce)	1
Use Cetin et al. (Cr)	Yes
Advanced Settings	
Magnitude Scaling Factor (MSF)	Idriss and Boulanger (2014)
Strength Reduction Factor (RD)	Idriss (1999)
Relative Density Estimation from SPT (Dr)	Idriss and Boulanger (2003)
Fines Content Correction	Idriss and Boulanger (2008)
K Sigma	Idriss and Boulanger (2008)
K Alpha	None

Input Data for Liquefaction

Depth [m]	SPT N
3	7
3.3	60
3.5	25
4.5	40
5.5	21
5.6	9
6	18
6.5	48
6.7	18
10.1	20
10.7	11
11.5	32
13.5	29
15	42
15.5	22
16	48
17	18
17.5	43
17.7	43
19	47
20	54
22.5	39
23	39
24.5	45
28.5	45

Soil Layers

Layer #	Type	Thickness [m]	Depth [m]
1	Limo (FL,AT)	5.3	0
2	Sabbia (FL, AT)	5	5.3
3	Limo (FL,AT)	7	10.3
4	Ghiaia (FL)	17.7	17.3



Soil Properties

Property	Limo (FL,AT)	Sabbia (FL, AT)	Ghiaia (FL)
Color			
Unit Weight [kN/m3]	20	20	21
Saturated Unit Weight [kN/m3]	20	20	21
K0	1	0.47	0.43
Undrained Su A [kN/m2]	0	0	0
Undrained Su S	0.2	0.2	0.2
Undrained Su m	0.8	0.8	0.8
Piezo Line ID	1	1	1
Fines Content [%]	50	15	20
D50 [mm]	2	2	2
Liquefaction Prone	Yes	Yes	No

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	10 m

2. TABULATI DI CALCOLO – RILEVATI

2.1. CEDIMENTI

Asse Principale
Cedimenti
Sezione Tipo A in rilevato H = 7.0 m
Report Creation Date: 2022/05/10, 15:00:12

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Settle3 Analysis Information

2022-04-29 TA1 h=7.0 m

Project Settings

Document Name	2022-04-29 TA1 h=7.0 m.s3z
Date Created	12/04/2022, 15:26:18
Stress Computation Method	Boussinesq
Time-dependent Consolidation Analysis	
Time Units	months
Permeability Units	meters/second
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name	Time [months]
1	Stage 1	0
2	Stage 2	1
3	Stage 4	6
4	Stage 5	12
5	Stage 7	600

Results

Time taken to compute: 0 seconds

Stage: Stage 1 = 0 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	58.4058
Total Consolidation Settlement [mm]	0	58.4058
Virgin Consolidation Settlement [mm]	0	12.4784
Recompression Consolidation Settlement [mm]	0	45.9275
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	38.0003
Loading Stress XX [kPa]	-11.0245	36.1101
Loading Stress YY [kPa]	-17.6224	63.0179
Effective Stress ZZ [kPa]	0	359.37
Effective Stress XX [kPa]	-8.86498	254.966
Effective Stress YY [kPa]	-4.40874	281.728
Total Stress ZZ [kPa]	0	612.931
Total Stress XX [kPa]	-8.86498	508.528
Total Stress YY [kPa]	-4.40874	535.289
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0.0998832
Pore Water Pressure [kPa]	0	253.561
Excess Pore Water Pressure [kPa]	0	37.6277
Degree of Consolidation [%]	0	42.4449
Pre-consolidation Stress [kPa]	4.66752	435.533
Over-consolidation Ratio	1	5.984
Void Ratio	0.440187	0.6
Permeability [m/s]	1.73782e-10	1.43541e-07
Coefficient of Consolidation [m^2/s]	3e-07	3e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-7.10543e-15	2.68936

Stage: Stage 2 = 1 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	174.43
Total Consolidation Settlement [mm]	0	174.43
Virgin Consolidation Settlement [mm]	0	78.5291
Recompression Consolidation Settlement [mm]	0	95.901
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	5.87904e-06	132.925
Loading Stress XX [kPa]	-29.47	134.497
Loading Stress YY [kPa]	-49.2256	220.459
Effective Stress ZZ [kPa]	5.87904e-06	387.301
Effective Stress XX [kPa]	-8.96092	381.284
Effective Stress YY [kPa]	-20.2945	461.904
Total Stress ZZ [kPa]	5.87904e-06	666.297
Total Stress XX [kPa]	-8.96092	660.28
Total Stress YY [kPa]	-20.2945	740.9
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	7.29938e-09	0.146916
Pore Water Pressure [kPa]	0	286.817
Excess Pore Water Pressure [kPa]	0	111.903
Degree of Consolidation [%]	0	48.0809
Pre-consolidation Stress [kPa]	4.66752	435.533
Over-consolidation Ratio	1	5.98395
Void Ratio	0.364934	0.6
Permeability [m/s]	1.73782e-10	1.43541e-07
Coefficient of Consolidation [m^2/s]	3e-07	3e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.0312

Stage: Stage 4 = 6 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	357.688
Total Consolidation Settlement [mm]	0	349.554
Virgin Consolidation Settlement [mm]	0	234.469
Recompression Consolidation Settlement [mm]	0	115.086
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	8.15488
Loading Stress ZZ [kPa]	5.87904e-06	132.925
Loading Stress XX [kPa]	-29.47	134.497
Loading Stress YY [kPa]	-49.2256	220.459
Effective Stress ZZ [kPa]	5.87904e-06	440.667
Effective Stress XX [kPa]	-8.96092	434.65
Effective Stress YY [kPa]	-20.2945	515.637
Total Stress ZZ [kPa]	5.87904e-06	666.297
Total Stress XX [kPa]	-8.96092	660.28
Total Stress YY [kPa]	-20.2945	740.9
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	1.28071e-08	0.148056
Pore Water Pressure [kPa]	0	236.482
Excess Pore Water Pressure [kPa]	0	45.1585
Degree of Consolidation [%]	0	99.0723
Pre-consolidation Stress [kPa]	4.66752	439.135
Over-consolidation Ratio	1	5.98395
Void Ratio	0.36311	0.6
Permeability [m/s]	1.73782e-10	1.43541e-07
Coefficient of Consolidation [m^2/s]	3e-07	3e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.0312

Stage: Stage 5 = 12 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	398.741
Total Consolidation Settlement [mm]	0	385.592
Virgin Consolidation Settlement [mm]	0	270.18
Recompression Consolidation Settlement [mm]	0	115.412
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	13.285
Loading Stress ZZ [kPa]	5.87904e-06	132.925
Loading Stress XX [kPa]	-29.47	134.497
Loading Stress YY [kPa]	-49.2256	220.459
Effective Stress ZZ [kPa]	5.87904e-06	440.667
Effective Stress XX [kPa]	-8.96092	434.65
Effective Stress YY [kPa]	-20.2945	516.059
Total Stress ZZ [kPa]	5.87904e-06	666.297
Total Stress XX [kPa]	-8.96092	660.28
Total Stress YY [kPa]	-20.2945	740.9
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	1.28071e-08	0.148498
Pore Water Pressure [kPa]	0	225.63
Excess Pore Water Pressure [kPa]	-9.07578e-31	12.7834
Degree of Consolidation [%]	0	99.7383
Pre-consolidation Stress [kPa]	4.66752	439.888
Over-consolidation Ratio	1	5.98395
Void Ratio	0.362404	0.6
Permeability [m/s]	1.73782e-10	1.43541e-07
Coefficient of Consolidation [m^2/s]	3e-07	3e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.0312

Stage: Stage 7 = 600 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	474.299
Total Consolidation Settlement [mm]	0	398.779
Virgin Consolidation Settlement [mm]	0	283.346
Recompression Consolidation Settlement [mm]	0	115.433
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	75.6115
Loading Stress ZZ [kPa]	5.87904e-06	132.925
Loading Stress XX [kPa]	-29.47	134.497
Loading Stress YY [kPa]	-49.2256	220.459
Effective Stress ZZ [kPa]	5.87904e-06	440.667
Effective Stress XX [kPa]	-8.96092	434.65
Effective Stress YY [kPa]	-20.2945	516.087
Total Stress ZZ [kPa]	5.87904e-06	666.297
Total Stress XX [kPa]	-8.96092	660.28
Total Stress YY [kPa]	-20.2945	740.9
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	1.28071e-08	0.150987
Pore Water Pressure [kPa]	0	225.63
Excess Pore Water Pressure [kPa]	-6.10345e-13	1.79368e-12
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [kPa]	4.66752	440.188
Over-consolidation Ratio	1	5.98395
Void Ratio	0.358421	0.6
Permeability [m/s]	1.73782e-10	1.43541e-07
Coefficient of Consolidation [m^2/s]	3e-07	3e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.0312

Embankments

1. Embankment: "Rilevato autostradale H=7.0 m"

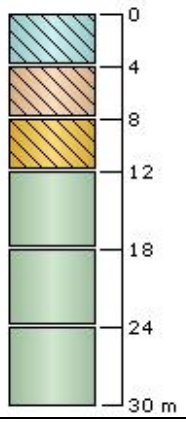
Label	Rilevato autostradale H=7.0 m
Center Line	(0, 0) to (200, 0)
Near End Angle	90 degrees
Far End Angle	90 degrees
Number of Layers	2
Base Width	50.7

Layer	Stage	Left Bench Width (m)	Left Angle (deg)	Height (m)	Unit Weight (kN/m3)	Right Angle (deg)	Right Bench Width (m)
1	Stage 1 = 0 mon	0	34	2	19	34	0
2	Stage 2 = 1 mon	2	34	5	19	34	2

Soil Layers

Ground Surface Drained: Yes

Layer #	Type	Thickness [m]	Depth [m]	Drained at Bottom
1	Limo L (FL) A	4	0	Yes
2	Limo L OCR B	4	4	Yes
3	Limo L OCR C	4	8	Yes
4	Limo L (FL) OCR 1	6	12	Yes
5	Limo L (FL) OCR 1	6	18	Yes
6	Limo L (FL) OCR 1	6	24	Yes



Soil Properties

Property		Limo L (FL) A	Limo L (FL) OCR 1	Limo L OCR B	Limo L OCR C
Color					
Unit Weight [kN/m3]		19.5	19.5	19.5	19.5
Saturated Unit Weight [kN/m3]		19.5	19.5	19.5	19.5
K0		0.609	0.609	0.609	1
Primary Consolidation		Enabled	Enabled	Enabled	Enabled
Material Type		Non-Linear	Non-Linear	Non-Linear	Non-Linear
Cc		0.14	0.14	0.14	0.14
Cr		0.04	0.04	0.04	0.04
e0		0.6	0.6	0.6	0.6
OCR	top	6	1	4.4	2.5
	bottom	4.4	-	2.8	1
Cv [m2/s]		3e-07	3e-07	3e-07	3e-07
Cvr [m2/s]		3e-07	3e-07	3e-07	3e-07
B-bar		1	1	1	1
Secondary Consolidation		Standard	Standard	Standard	Standard
Ca		0.002	0.002	0.002	0.002
Car		0.002	0.002	0.002	0.002
Undrained Su A [kN/m2]		0	0	0	0
Undrained Su S		0.2	0.2	0.2	0.2
Undrained Su m		0.8	0.8	0.8	0.8
Piezo Line ID		1	1	1	1

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	7 m

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	100, 0	Auto: 63

Field Point Grid

Number of points	308
Expansion Factor	2

Grid Coordinates

X [m]	Y [m]
300	125.35
300	-125.35
-100	-125.35
-100	125.35

Asse Principale
Cedimenti
Sezione Tipo B in allargamento rilevato H = 7.5 m
Report Creation Date: 2022/05/10, 15:04:34

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Settle3 Analysis Information

2022-04-29 TA2 h=7.5 m

Project Settings

Document Name	2022-04-29 TA2 h=7.5 m.s3z
Date Created	12/04/2022, 15:26:18
Stress Computation Method	Boussinesq
Time-dependent Consolidation Analysis	
Time Units	months
Permeability Units	meters/second
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name	Time [months]
1	Stage 1	0
2	Stage 2	120
3	Stage 3	121
4	Stage 4	123
5	Stage 5	126
6	Stage 6	132
7	Stage 7	720

Results (relative to Stage: Stage 2 = 120 mon)

Time taken to compute: 0 seconds

Stage: Stage 1 = 0 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	-384.623	0
Total Consolidation Settlement [mm]	-384.623	0
Virgin Consolidation Settlement [mm]	-267.451	0
Recompression Consolidation Settlement [mm]	-117.173	0
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	-138.68	0
Effective Stress XX [kPa]	-138.68	0
Effective Stress YY [kPa]	-138.68	0
Total Stress ZZ [kPa]	-1.13687e-13	1.13687e-13
Total Stress XX [kPa]	-1.13687e-13	1.13687e-13
Total Stress YY [kPa]	-2.27374e-13	1.13687e-13
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	-0.0235552	0
Pore Water Pressure [kPa]	0	138.68
Excess Pore Water Pressure [kPa]	0	138.68
Degree of Consolidation [%]	-100	0
Pre-consolidation Stress [kPa]	-104.024	0
Over-consolidation Ratio	0	4.00423
Void Ratio	0	0.0388661
Permeability [m/s]	-8.2108e-10	0
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-5.99182	0

Stage: Stage 2 = 120 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	0
Total Consolidation Settlement [mm]	0	0
Virgin Consolidation Settlement [mm]	0	0
Recompression Consolidation Settlement [mm]	0	0
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	0	0
Loading Stress XX [kPa]	0	0
Loading Stress YY [kPa]	0	0
Effective Stress ZZ [kPa]	0	0
Effective Stress XX [kPa]	0	0
Effective Stress YY [kPa]	0	0
Total Stress ZZ [kPa]	0	0
Total Stress XX [kPa]	0	0
Total Stress YY [kPa]	0	0
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0
Pore Water Pressure [kPa]	0	0
Excess Pore Water Pressure [kPa]	0	0
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [kPa]	0	0
Over-consolidation Ratio	0	0
Void Ratio	0	0
Permeability [m/s]	0	0
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	0

Stage: Stage 3 = 121 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	93.186
Total Consolidation Settlement [mm]	-2.84217e-14	93.0387
Virgin Consolidation Settlement [mm]	0	51.8013
Recompression Consolidation Settlement [mm]	-1.06581e-14	41.2373
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0.148703
Loading Stress ZZ [kPa]	0.377161	135.591
Loading Stress XX [kPa]	-15.461	161.416
Loading Stress YY [kPa]	-21.9978	231.693
Effective Stress ZZ [kPa]	-5.68434e-14	135.591
Effective Stress XX [kPa]	-15.461	161.416
Effective Stress YY [kPa]	-21.9978	231.693
Total Stress ZZ [kPa]	0.377161	135.591
Total Stress XX [kPa]	-7.86832	249.075
Total Stress YY [kPa]	-19.0969	343.532
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	5.24357e-06	0.124768
Pore Water Pressure [kPa]	0	126.211
Excess Pore Water Pressure [kPa]	0	126.211
Degree of Consolidation [%]	-65.769	0
Pre-consolidation Stress [kPa]	0	125.987
Over-consolidation Ratio	-4.35471	4.44089e-16
Void Ratio	-0.205867	-8.65189e-06
Permeability [m/s]	0	5.10368e-08
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.37536

Stage: Stage 4 = 123 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	337.01
Total Consolidation Settlement [mm]	0	336.823
Virgin Consolidation Settlement [mm]	0	209.105
Recompression Consolidation Settlement [mm]	0	127.717
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0.333249
Loading Stress ZZ [kPa]	0.377161	135.591
Loading Stress XX [kPa]	-15.461	161.416
Loading Stress YY [kPa]	-21.9978	231.693
Effective Stress ZZ [kPa]	0.377161	135.591
Effective Stress XX [kPa]	-8.6112	248.417
Effective Stress YY [kPa]	-19.0969	343.532
Total Stress ZZ [kPa]	0.377161	135.591
Total Stress XX [kPa]	-7.86832	249.075
Total Stress YY [kPa]	-19.0969	343.532
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0.000132405	0.124783
Pore Water Pressure [kPa]	0	18.5804
Excess Pore Water Pressure [kPa]	0	18.5804
Degree of Consolidation [%]	-5.52063	0
Pre-consolidation Stress [kPa]	0	125.987
Over-consolidation Ratio	-4.35471	0
Void Ratio	-0.205892	-0.000218469
Permeability [m/s]	0	5.10368e-08
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.37536

Stage: Stage 5 = 126 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	357.061
Total Consolidation Settlement [mm]	0	356.443
Virgin Consolidation Settlement [mm]	0	224.247
Recompression Consolidation Settlement [mm]	0	132.197
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0.909284
Loading Stress ZZ [kPa]	0.377161	135.591
Loading Stress XX [kPa]	-15.461	161.416
Loading Stress YY [kPa]	-21.9978	231.693
Effective Stress ZZ [kPa]	0.377161	135.591
Effective Stress XX [kPa]	-7.86832	248.66
Effective Stress YY [kPa]	-19.0969	343.532
Total Stress ZZ [kPa]	0.377161	135.591
Total Stress XX [kPa]	-7.86832	249.075
Total Stress YY [kPa]	-19.0969	343.532
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0.000151846	0.124805
Pore Water Pressure [kPa]	0	1.0969
Excess Pore Water Pressure [kPa]	0	1.0969
Degree of Consolidation [%]	-0.32067	0
Pre-consolidation Stress [kPa]	0	125.987
Over-consolidation Ratio	-4.35471	0
Void Ratio	-0.205928	-0.000250546
Permeability [m/s]	0	5.10368e-08
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.37536

Stage: Stage 6 = 132 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	359.339
Total Consolidation Settlement [mm]	0	357.601
Virgin Consolidation Settlement [mm]	0	225.204
Recompression Consolidation Settlement [mm]	0	132.396
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	2.03178
Loading Stress ZZ [kPa]	0.377161	135.591
Loading Stress XX [kPa]	-15.461	161.416
Loading Stress YY [kPa]	-21.9978	231.693
Effective Stress ZZ [kPa]	0.377161	135.591
Effective Stress XX [kPa]	-7.86832	249.074
Effective Stress YY [kPa]	-19.0969	343.532
Total Stress ZZ [kPa]	0.377161	135.591
Total Stress XX [kPa]	-7.86832	249.075
Total Stress YY [kPa]	-19.0969	343.532
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0.000189376	0.124847
Pore Water Pressure [kPa]	0	0.0175466
Excess Pore Water Pressure [kPa]	-1.24399e-31	0.0175466
Degree of Consolidation [%]	-0.00227459	0
Pre-consolidation Stress [kPa]	0	125.987
Over-consolidation Ratio	-4.35471	0
Void Ratio	-0.205997	-0.00031247
Permeability [m/s]	0	5.10368e-08
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.37536

Stage: Stage 7 = 720 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	400.217
Total Consolidation Settlement [mm]	0	357.608
Virgin Consolidation Settlement [mm]	0	225.211
Recompression Consolidation Settlement [mm]	0	132.397
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	42.9663
Loading Stress ZZ [kPa]	0.377161	135.591
Loading Stress XX [kPa]	-15.461	161.416
Loading Stress YY [kPa]	-21.9978	231.693
Effective Stress ZZ [kPa]	0.377161	135.591
Effective Stress XX [kPa]	-7.86832	249.075
Effective Stress YY [kPa]	-19.0969	343.532
Total Stress ZZ [kPa]	0.377161	135.591
Total Stress XX [kPa]	-7.86832	249.075
Total Stress YY [kPa]	-19.0969	343.532
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0.00155798	0.126382
Pore Water Pressure [kPa]	0	0
Excess Pore Water Pressure [kPa]	-1.26829e-29	1.0956e-28
Degree of Consolidation [%]	-1.42109e-14	1.42109e-14
Pre-consolidation Stress [kPa]	0	125.987
Over-consolidation Ratio	-4.35471	0
Void Ratio	-0.208531	-0.00257067
Permeability [m/s]	0	5.10368e-08
Coefficient of Consolidation [m^2/s]	0	0
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.37536

Embankments

1. Embankment: "Ringrosso H=7.5 m"

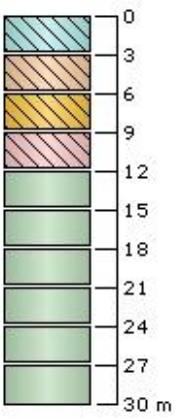
Label	Ringrosso H=7.5 m
Center Line	(0, 0) to (200, 0)
Near End Angle	90 degrees
Far End Angle	90 degrees
Number of Layers	2
Base Width	34.5

Layer	Stage	Left Bench Width (m)	Left Angle (deg)	Height (m)	Unit Weight (kN/m3)	Right Angle (deg)	Right Bench Width (m)
1	Stage 1 = 0 mon	0	34	2.5	19	34	0
2	Stage 1 = 0 mon	0	34	5	19	34	0

Soil Layers

Ground Surface Drained: Yes

Layer #	Type	Thickness [m]	Depth [m]	Drained at Bottom
1	Limo LS (at) A	3	0	Yes
2	Limo LS (at) OCR B	3	3	Yes
3	Limo LS (at) OCR C	3	6	Yes
4	Limo LS (at) OCR D	3	9	Yes
5	Limo LS (at) OCR 1	3	12	Yes
6	Limo LS (at) OCR 1	3	15	Yes
7	Limo LS (at) OCR 1	3	18	Yes
8	Limo LS (at) OCR 1	3	21	Yes
9	Limo LS (at) OCR 1	3	24	Yes
10	Limo LS (at) OCR 1	3	27	Yes



Soil Properties

Property		Limo LS (at) A	Limo LS (at) OCR 1	Limo LS (at) OCR B	Limo LS (at) OCR C
Color					
Unit Weight [kN/m3]		19.5	19.5	19.5	19.5
Saturated Unit Weight [kN/m3]		19.5	19.5	19.5	19.5
K0		0.593	0.593	0.593	0.593
Primary Consolidation		Enabled	Enabled	Enabled	Enabled
Material Type		Non-Linear	Non-Linear	Non-Linear	Non-Linear
Cc		0.16	0.16	0.16	0.16
Cr		0.05	0.05	0.05	0.05
e0		0.65	0.65	0.65	0.65
OCR	top	6	1	4.8	3.6
	bottom	4.8	-	3.6	2.4
Cv [m2/s]		3.5e-07	3.5e-07	3.5e-07	3.5e-07
Cvr [m2/s]		3.5e-07	3.5e-07	3.5e-07	3.5e-07
B-bar		1	1	1	1
Secondary Consolidation		Standard	Standard	Standard	Standard
Ca		0.003	0.003	0.003	0.003
Car		0.003	0.003	0.003	0.003
Undrained Su A [kN/m2]		0	0	0	0
Undrained Su S		0.2	0.2	0.2	0.2
Undrained Su m		0.8	0.8	0.8	0.8
Piezo Line ID		1	1	1	1

Property		Limo LS (at) OCR D
Color		
Unit Weight [kN/m3]		19.5
Saturated Unit Weight [kN/m3]		19.5
K0		0.593
Primary Consolidation		Enabled
Material Type		Non-Linear
Cc		0.16
Cr		0.05
e0		0.65
OCR	top	2.4
	bottom	1
Cv [m2/s]		3.5e-07
Cvr [m2/s]		3.5e-07
B-bar		1
Secondary Consolidation		Standard
Ca		0.003
Car		0.003
Undrained Su A [kN/m2]		0
Undrained Su S		0.2
Undrained Su m		0.8
Piezo Line ID		1

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	2 m

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	100, 0	Auto: 67
2	Query Point 2	100, 19.5	Auto: 67

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Strada di collegamento SR73 – Raccordo A1 Arezzo – Battifolle

Cedimenti

Sezione Tipo C in rilevato H = 8.5 m

Report Creation Date: 2022/05/10, 15:06:21

Table of Contents

Settle3 Analysis Information

2022-04-29 Tc1 h=8.5 m

Project Settings

Document Name	2022-04-29 Tc1 h=8.5 m.s3z
Date Created	12/04/2022, 15:26:18
Stress Computation Method	Boussinesq
Time-dependent Consolidation Analysis	
Time Units	months
Permeability Units	meters/second
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name	Time [months]
1	Stage 1	0
2	Stage 2	1
3	Stage 3	6
4	Stage 4	12
5	Stage 5	600

Results

Time taken to compute: 0 seconds

Stage: Stage 1 = 0 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	354.223
Total Consolidation Settlement [mm]	0	329.733
Virgin Consolidation Settlement [mm]	0	254.377
Recompression Consolidation Settlement [mm]	0	75.3555
Immediate Settlement [mm]	0	24.4898
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	2.20956e-05	160.072
Loading Stress XX [kPa]	-21.4819	171.036
Loading Stress YY [kPa]	-34.8577	264.521
Effective Stress ZZ [kPa]	2.20956e-05	394.05
Effective Stress XX [kPa]	-12.7307	413.328
Effective Stress YY [kPa]	-12.0593	496.269
Total Stress ZZ [kPa]	2.20956e-05	670.004
Total Stress XX [kPa]	-12.7307	671.223
Total Stress YY [kPa]	-12.0593	754.164
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0.144128
Pore Water Pressure [kPa]	0	275.954
Excess Pore Water Pressure [kPa]	0	133.185
Degree of Consolidation [%]	0	55.7964
Pre-consolidation Stress [kPa]	11.5684	392.931
Over-consolidation Ratio	1	3.95497
Void Ratio	0	0.85
Permeability [m/s]	0	4.51129e-08
Coefficient of Consolidation [m^2/s]	0	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-1.42109e-14	8.42505

Stage: Stage 2 = 1 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	502.344
Total Consolidation Settlement [mm]	0	477.854
Virgin Consolidation Settlement [mm]	0	402.498
Recompression Consolidation Settlement [mm]	0	75.3555
Immediate Settlement [mm]	0	24.4898
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	2.20956e-05	160.072
Loading Stress XX [kPa]	-21.4819	171.036
Loading Stress YY [kPa]	-34.8577	264.521
Effective Stress ZZ [kPa]	2.20956e-05	473.804
Effective Stress XX [kPa]	-12.7307	486.678
Effective Stress YY [kPa]	-12.0593	573.005
Total Stress ZZ [kPa]	2.20956e-05	670.004
Total Stress XX [kPa]	-12.7307	671.223
Total Stress YY [kPa]	-12.0593	754.164
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	2.64705e-08	0.144128
Pore Water Pressure [kPa]	0	247.642
Excess Pore Water Pressure [kPa]	0	126.73
Degree of Consolidation [%]	0	78.817
Pre-consolidation Stress [kPa]	11.5684	472.874
Over-consolidation Ratio	1	3.95497
Void Ratio	0	0.85
Permeability [m/s]	0	4.51129e-08
Coefficient of Consolidation [m^2/s]	0	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	8.42505

Stage: Stage 3 = 6 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	587.329
Total Consolidation Settlement [mm]	0	559.203
Virgin Consolidation Settlement [mm]	0	483.848
Recompression Consolidation Settlement [mm]	0	75.3555
Immediate Settlement [mm]	0	24.4898
Secondary Settlement [mm]	0	3.63616
Loading Stress ZZ [kPa]	2.20956e-05	160.072
Loading Stress XX [kPa]	-21.4819	171.036
Loading Stress YY [kPa]	-34.8577	264.521
Effective Stress ZZ [kPa]	2.20956e-05	473.804
Effective Stress XX [kPa]	-12.7307	486.678
Effective Stress YY [kPa]	-12.0593	573.005
Total Stress ZZ [kPa]	2.20956e-05	670.004
Total Stress XX [kPa]	-12.7307	671.223
Total Stress YY [kPa]	-12.0593	754.164
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	2.64705e-08	0.144128
Pore Water Pressure [kPa]	0	220.735
Excess Pore Water Pressure [kPa]	0	86.9436
Degree of Consolidation [%]	0	91.5442
Pre-consolidation Stress [kPa]	11.5684	472.874
Over-consolidation Ratio	1	3.95497
Void Ratio	0	0.85
Permeability [m/s]	0	4.51129e-08
Coefficient of Consolidation [m^2/s]	0	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	8.42505

Stage: Stage 4 = 12 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	617.246
Total Consolidation Settlement [mm]	0	586.247
Virgin Consolidation Settlement [mm]	0	510.891
Recompression Consolidation Settlement [mm]	0	75.3555
Immediate Settlement [mm]	0	24.4898
Secondary Settlement [mm]	0	6.5093
Loading Stress ZZ [kPa]	2.20956e-05	160.072
Loading Stress XX [kPa]	-21.4819	171.036
Loading Stress YY [kPa]	-34.8577	264.521
Effective Stress ZZ [kPa]	2.20956e-05	473.804
Effective Stress XX [kPa]	-12.7307	488.257
Effective Stress YY [kPa]	-12.0593	573.005
Total Stress ZZ [kPa]	2.20956e-05	670.004
Total Stress XX [kPa]	-12.7307	671.223
Total Stress YY [kPa]	-12.0593	754.164
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	2.64705e-08	0.144128
Pore Water Pressure [kPa]	0	196.2
Excess Pore Water Pressure [kPa]	0	46.5627
Degree of Consolidation [%]	0	95.7857
Pre-consolidation Stress [kPa]	11.5684	472.874
Over-consolidation Ratio	1	3.95497
Void Ratio	0	0.85
Permeability [m/s]	0	4.51129e-08
Coefficient of Consolidation [m^2/s]	0	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	8.42505

Stage: Stage 5 = 600 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	682.673
Total Consolidation Settlement [mm]	0	613.009
Virgin Consolidation Settlement [mm]	0	537.654
Recompression Consolidation Settlement [mm]	0	75.3555
Immediate Settlement [mm]	0	24.4898
Secondary Settlement [mm]	0	45.1742
Loading Stress ZZ [kPa]	2.20956e-05	160.072
Loading Stress XX [kPa]	-21.4819	171.036
Loading Stress YY [kPa]	-34.8577	264.521
Effective Stress ZZ [kPa]	2.20956e-05	473.804
Effective Stress XX [kPa]	-12.7307	497.586
Effective Stress YY [kPa]	-12.0593	580.527
Total Stress ZZ [kPa]	2.20956e-05	670.004
Total Stress XX [kPa]	-12.7307	671.223
Total Stress YY [kPa]	-12.0593	754.164
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	2.64705e-08	0.144128
Pore Water Pressure [kPa]	0	196.2
Excess Pore Water Pressure [kPa]	-2.06663e-32	3.14045e-28
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [kPa]	11.5684	472.874
Over-consolidation Ratio	1	3.95497
Void Ratio	0	0.85
Permeability [m/s]	0	4.51129e-08
Coefficient of Consolidation [m^2/s]	0	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	8.42505

Embankments

1. Embankment: "H=8.5 m"

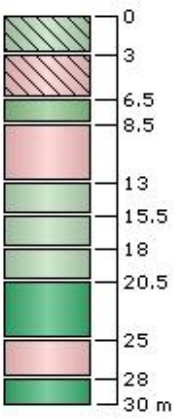
Label	H=8.5 m
Center Line	(0, 0) to (200, 0)
Near End Angle	90 degrees
Far End Angle	90 degrees
Number of Layers	2
Base Width	43.7

Layer	Stage	Left Bench Width (m)	Left Angle (deg)	Height (m)	Unit Weight (kN/m3)	Right Angle (deg)	Right Bench Width (m)
1	Stage 1 = 0 mon	0	34	3.5	19	34	0
2	Stage 1 = 0 mon	2	34	5	19	34	2

Soil Layers

Ground Surface Drained: Yes

Layer #	Type	Thickness [m]	Depth [m]	Drained at Bottom
1	Limo L (FL)	3	0	Yes
2	Argilla (FL)	3.5	3	Yes
3	Sabbia (FL,AT)	2	6.5	Yes
4	Argilla (FL) OCR = 1	4.5	8.5	Yes
5	Limo L (FL) OCR 1	2.5	13	Yes
6	Limo L (FL) OCR 1	2.5	15.5	Yes
7	Limo L (FL) OCR 1	2.5	18	Yes
8	Ghiaia	4.5	20.5	Yes
9	Argilla (FL) OCR = 1	3	25	Yes
10	Ghiaia	2	28	Yes



Soil Properties

Property		Limo L (FL)	Limo L (FL) OCR 1	Argilla (FL)	Argilla (FL) OCR = 1
Color					
Unit Weight [kN/m3]		19.5	19.5	19	19
Saturated Unit Weight [kN/m3]		19.5	19.5	19	19
K0		0.609	0.609	0.657	0.657
Primary Consolidation		Enabled	Enabled	Enabled	Enabled
Material Type		Non-Linear	Non-Linear	Non-Linear	Non-Linear
Cc		0.18	0.18	0.3	0.3
Cr		0.04	0.04	0.06	0.06
e0		0.6	0.6	0.85	0.85
OCR	top	4	1	2	1
	bottom	3.1	-	-	-
Cv [m2/s]		2.75e-07	2.75e-07	3.67e-08	3.67e-08
Cvr [m2/s]		2.75e-07	2.75e-07	3.67e-08	3.67e-08
B-bar		1	1	1	1
Secondary Consolidation		Standard	Standard	Standard	Standard
Ca		0.002	0.002	0.005	0.005
Car		0.002	0.002	0.005	0.005
Undrained Su A [kN/m2]		0	0	0	0
Undrained Su S		0.2	0.2	0.2	0.2
Undrained Su m		0.8	0.8	0.8	0.8
Piezo Line ID		1	1	1	1

Property	Sabbia (FL,AT)	Ghiaia
Color		
Unit Weight [kN/m3]	20	21
Saturated Unit Weight [kN/m3]	20	21
K0	0.47	0.426
Immediate Settlement	Enabled	Enabled
Es [kPa]	25000	45000
Esur [kPa]	25000	45000
B-bar	-	-
Undrained Su A [kN/m2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Piezo Line ID	1	1

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	10 m

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	100, 0	Auto: 75

Field Point Grid

Number of points	286
Expansion Factor	2

Grid Coordinates

X [m]	Y [m]
300	121.85
300	-121.85
-100	-121.85
-100	121.85

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Strada di collegamento SR73 – Raccordo A1 Arezzo – Battifolle

Cedimenti

Sezione Tipo D in rilevato H = 10.0 m

Report Creation Date: 2022/05/10, 15:12:39

Table of Contents

Settle3 Analysis Information

2022-04-29 Tc3 h=10.0 m

Project Settings

Document Name	2022-04-29 Tc3 h=10.0 m.s3z
Date Created	12/04/2022, 15:26:18
Stress Computation Method	Boussinesq
Time-dependent Consolidation Analysis	
Time Units	months
Permeability Units	meters/second
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Improve consolidation accuracy	
Ignore negative effective stresses in settlement calculations	

Stage Settings

Stage #	Name	Time [months]
1	Stage 1	0
2	Stage 2	1
3	Stage 3	6
4	Stage 4	12
5	Stage 5	600

Results

Time taken to compute: 0 seconds

Stage: Stage 1 = 0 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	300.9
Total Consolidation Settlement [mm]	0	300.9
Virgin Consolidation Settlement [mm]	0	210.378
Recompression Consolidation Settlement [mm]	0	90.5217
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	6.12005e-05	186.42
Loading Stress XX [kPa]	-35.3705	196.189
Loading Stress YY [kPa]	-60.6692	308.279
Effective Stress ZZ [kPa]	6.12005e-05	351.388
Effective Stress XX [kPa]	-8.63203	385.758
Effective Stress YY [kPa]	-24.3428	495.386
Total Stress ZZ [kPa]	6.12005e-05	547.935
Total Stress XX [kPa]	-8.63203	622.413
Total Stress YY [kPa]	-24.3428	732.041
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	0	0.230822
Pore Water Pressure [kPa]	0	236.655
Excess Pore Water Pressure [kPa]	0	157.193
Degree of Consolidation [%]	0	54.4935
Pre-consolidation Stress [kPa]	1.94659	349.979
Over-consolidation Ratio	1	3.99249
Void Ratio	0.269143	0.65
Permeability [m/s]	1.47856e-10	2.62475e-07
Coefficient of Consolidation [m^2/s]	2.75e-07	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.60887

Stage: Stage 2 = 1 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	503.106
Total Consolidation Settlement [mm]	0	503.106
Virgin Consolidation Settlement [mm]	0	412.584
Recompression Consolidation Settlement [mm]	0	90.5217
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	0
Loading Stress ZZ [kPa]	6.12005e-05	186.42
Loading Stress XX [kPa]	-35.3705	196.189
Loading Stress YY [kPa]	-60.6692	308.279
Effective Stress ZZ [kPa]	6.12005e-05	430.215
Effective Stress XX [kPa]	-8.63203	504.693
Effective Stress YY [kPa]	-24.3428	614.321
Total Stress ZZ [kPa]	6.12005e-05	547.935
Total Stress XX [kPa]	-8.63203	622.413
Total Stress YY [kPa]	-24.3428	732.041
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	4.73674e-08	0.230822
Pore Water Pressure [kPa]	0	137.989
Excess Pore Water Pressure [kPa]	0	62.0696
Degree of Consolidation [%]	0	97.2202
Pre-consolidation Stress [kPa]	1.94659	425.663
Over-consolidation Ratio	1	3.99249
Void Ratio	0.269143	0.65
Permeability [m/s]	1.47856e-10	2.62475e-07
Coefficient of Consolidation [m^2/s]	2.75e-07	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.60887

Stage: Stage 3 = 6 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	558.17
Total Consolidation Settlement [mm]	0	552.005
Virgin Consolidation Settlement [mm]	0	461.484
Recompression Consolidation Settlement [mm]	0	90.5217
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	6.16475
Loading Stress ZZ [kPa]	6.12005e-05	186.42
Loading Stress XX [kPa]	-35.3705	196.189
Loading Stress YY [kPa]	-60.6692	308.279
Effective Stress ZZ [kPa]	6.12005e-05	430.215
Effective Stress XX [kPa]	-8.63203	504.693
Effective Stress YY [kPa]	-24.3428	614.321
Total Stress ZZ [kPa]	6.12005e-05	547.935
Total Stress XX [kPa]	-8.63203	622.413
Total Stress YY [kPa]	-24.3428	732.041
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	4.73674e-08	0.230822
Pore Water Pressure [kPa]	0	117.72
Excess Pore Water Pressure [kPa]	0	0.244765
Degree of Consolidation [%]	0	99.9997
Pre-consolidation Stress [kPa]	1.94659	429.527
Over-consolidation Ratio	1	3.99249
Void Ratio	0.269143	0.65
Permeability [m/s]	1.47856e-10	2.62475e-07
Coefficient of Consolidation [m^2/s]	2.75e-07	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.60887

Stage: Stage 4 = 12 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	562.812
Total Consolidation Settlement [mm]	0	552.175
Virgin Consolidation Settlement [mm]	0	461.653
Recompression Consolidation Settlement [mm]	0	90.5217
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	10.6368
Loading Stress ZZ [kPa]	6.12005e-05	186.42
Loading Stress XX [kPa]	-35.3705	196.189
Loading Stress YY [kPa]	-60.6692	308.279
Effective Stress ZZ [kPa]	6.12005e-05	430.215
Effective Stress XX [kPa]	-8.63203	504.693
Effective Stress YY [kPa]	-24.3428	614.321
Total Stress ZZ [kPa]	6.12005e-05	547.935
Total Stress XX [kPa]	-8.63203	622.413
Total Stress YY [kPa]	-24.3428	732.041
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	4.73674e-08	0.230822
Pore Water Pressure [kPa]	0	117.72
Excess Pore Water Pressure [kPa]	0	0.000315622
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [kPa]	1.94659	429.527
Over-consolidation Ratio	1	3.99249
Void Ratio	0.269143	0.65
Permeability [m/s]	1.47856e-10	2.62475e-07
Coefficient of Consolidation [m^2/s]	2.75e-07	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.60887

Stage: Stage 5 = 600 mon

Data Type	Minimum	Maximum
Total Settlement [mm]	0	588.052
Total Consolidation Settlement [mm]	0	552.175
Virgin Consolidation Settlement [mm]	0	461.654
Recompression Consolidation Settlement [mm]	0	90.5217
Immediate Settlement [mm]	0	0
Secondary Settlement [mm]	0	35.8767
Loading Stress ZZ [kPa]	6.12005e-05	186.42
Loading Stress XX [kPa]	-35.3705	196.189
Loading Stress YY [kPa]	-60.6692	308.279
Effective Stress ZZ [kPa]	6.12005e-05	430.215
Effective Stress XX [kPa]	-8.63203	504.693
Effective Stress YY [kPa]	-24.3428	614.321
Total Stress ZZ [kPa]	6.12005e-05	547.935
Total Stress XX [kPa]	-8.63203	622.413
Total Stress YY [kPa]	-24.3428	732.041
Modulus of Subgrade Reaction (Total) [kPa/m]	0	0
Modulus of Subgrade Reaction (Immediate) [kPa/m]	0	0
Modulus of Subgrade Reaction (Consolidation) [kPa/m]	0	0
Total Strain	4.73674e-08	0.230822
Pore Water Pressure [kPa]	0	117.72
Excess Pore Water Pressure [kPa]	-3.54284e-20	3.59111e-20
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [kPa]	1.94659	429.527
Over-consolidation Ratio	1	3.99249
Void Ratio	0.269143	0.65
Permeability [m/s]	1.47856e-10	2.62475e-07
Coefficient of Consolidation [m^2/s]	2.75e-07	2.75e-07
Hydroconsolidation Settlement [mm]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	9.60887

Embankments

1. Embankment: "H=10.0 m"

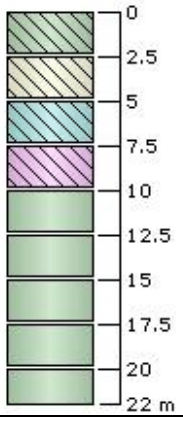
Label	H=10.0 m
Center Line	(0, 0) to (200, 0)
Near End Angle	90 degrees
Far End Angle	90 degrees
Number of Layers	2
Base Width	48.2

Layer	Stage	Left Bench Width (m)	Left Angle (deg)	Height (m)	Unit Weight (kN/m3)	Right Angle (deg)	Right Bench Width (m)
1	Stage 1 = 0 mon	0	34	5	19	34	0
2	Stage 1 = 0 mon	2	34	5	19	34	2

Soil Layers

Ground Surface Drained: Yes

Layer #	Type	Thickness [m]	Depth [m]	Drained at Bottom
1	Limo L A (FL)	2.5	0	Yes
2	Limo L(FL) B	2.5	2.5	Yes
3	Limo L(FL) C	2.5	5	Yes
4	Limo L(FL) D	2.5	7.5	Yes
5	Limo L (FL) OCR 1	2.5	10	Yes
6	Limo L (FL) OCR 1	2.5	12.5	Yes
7	Limo L (FL) OCR 1	2.5	15	Yes
8	Limo L (FL) OCR 1	2.5	17.5	Yes
9	Limo L (FL) OCR 1	2	20	Yes



Soil Properties

Property		Limo L A (FL)	Limo L (FL) OCR 1	Limo L(FL) B	Limo L(FL) C
Color					
Unit Weight [kN/m3]		19.5	19.5	19.5	19.5
Saturated Unit Weight [kN/m3]		19.5	19.5	19.5	19.5
K0		0.609	0.609	0.609	0.609
Primary Consolidation		Enabled	Enabled	Enabled	Enabled
Material Type		Non-Linear	Non-Linear	Non-Linear	Non-Linear
Cc		0.18	0.18	0.18	0.18
Cr		0.04	0.04	0.04	0.04
e0		0.65	0.65	0.65	0.65
OCR	top	4	1	3.3	2.5
	bottom	3.3	-	2.5	1.8
Cv [m2/s]		2.75e-07	2.75e-07	2.75e-07	2.75e-07
Cvr [m2/s]		2.75e-07	2.75e-07	2.75e-07	2.75e-07
B-bar		1	1	1	1
Secondary Consolidation		Standard	Standard	Standard	Standard
Ca		0.002	0.002	0.002	0.002
Car		0.002	0.002	0.002	0.002
Undrained Su A [kN/m2]		0	0	0	0
Undrained Su S		0.2	0.2	0.2	0.2
Undrained Su m		0.8	0.8	0.8	0.8
Piezo Line ID		1	1	1	1

Property		Limo L(FL) D
Color		
Unit Weight [kN/m3]		19.5
Saturated Unit Weight [kN/m3]		19.5
K0		0.609
Primary Consolidation		Enabled
Material Type		Non-Linear
Cc		0.18
Cr		0.04
e0		0.65
OCR	top	1.8
	bottom	1
Cv [m2/s]		2.75e-07
Cvr [m2/s]		2.75e-07
B-bar		1
Secondary Consolidation		Standard
Ca		0.002
Car		0.002
Undrained Su A [kN/m2]		0
Undrained Su S		0.2
Undrained Su m		0.8
Piezo Line ID		1

Groundwater

Groundwater method	Piezometric Lines
Water Unit Weight	9.81 kN/m3

Piezometric Line Entities

ID	Depth (m)
1	10 m

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	100, 0	Auto: 87

Field Point Grid

Number of points	308
Expansion Factor	2

Grid Coordinates

X [m]	Y [m]
300	124.1
300	-124.1
-100	-124.1
-100	124.1

2.2. VERIFICHE DI STABILITÀ

rocscience

Asse Principale
Stabilità globale - SLU
Sezione Tipo A H=7.0 m e Sezione Tipo B H=7.5 m
Date Created: 03/05/2022, 10:43:36
Software Version: 9.02

Table of Contents

Slide Analysis Information

2022-05-03 Asse principale A1

Project Summary

File Name:	2022-05-03 Asse principale A1.slmd
Slide Modeler Version:	9.02
Project Title:	SLIDE - An Interactive Slope Stability Program
Date Created:	03/05/2022, 10:43:36

Currently Open Scenarios

Group Name	Scenario Name	Global Minimum	Compute Time
Group 1	Master Scenario	Bishop Simplified: 1.281550	00h:00m:01.27s
Group 2	Master Scenario	Bishop Simplified: 1.223730	00h:00m:00.959s

General Settings

Units of Measurement:	Metric Units
Time Units:	days
Permeability Units:	meters/second
Data Output:	Standard
Failure Direction:	Right to Left

Design Standard

All Open Scenarios

Selected Type:	Eurocode 7 (User Defined)
Name:	A2+M2+R2

Type	Partial Factor
Permanent Actions: Unfavourable	1
Permanent Actions: Favourable	1
Variable Actions: Unfavourable	1.3
Variable Actions: Favourable	0
Effective cohesion	1.25
Coefficient of shearing resistance	1.25
Undrained strength	1.4
Weight density	1
Shear strength (other models)	1.25
Earth resistance	1.1
Tensile and plate strength	1
Shear strength	1
Compressive strength	1
Bond strength	1
Seismic Coefficient	1

Analysis Options

All Open Scenarios

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

All Open Scenarios

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [kN/m3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [kPa]:	0
Advanced Groundwater Method:	None

Random Numbers

All Open Scenarios

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

All Open Scenarios

Surface Type:	Circular
Search Method:	Auto Refine Search
Divisions along slope:	20
Circles per division:	10
Number of iterations:	10
Divisions to use in next iteration:	50%
Composite Surfaces:	Disabled
Minimum Elevation:	Not Defined
Minimum Depth [m]:	2
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

All Open Scenarios

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

All Open Scenarios

Distribution:	Constant
Magnitude [kPa]:	20
Orientation:	Normal to boundary
Load Action:	Live

Distribution:	Constant
Magnitude [kPa]:	20
Orientation:	Normal to boundary
Load Action:	Live

Materials

Rilevato	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	19
Cohesion [kPa]	0
Friction Angle [deg]	35
Water Surface	Assigned per scenario
Hu Value	1
Limo	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	60
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Limo con sabbia	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	50
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	1.6
Water Surface	Assigned per scenario
Hu Value	0

Materials In Use

Material	Group 1	Group 2
Rilevato	✓	✓
Limo	✓	✗
Limo con sabbia	✗	✓

Global Minimums

Group 1

Method: bishop simplified

FS	1.281550
Center:	19.721, 28.240
Radius:	28.241
Left Slip Surface Endpoint:	19.438, 0.000
Right Slip Surface Endpoint:	38.334, 7.000
Resisting Moment:	12322.5 kN-m
Driving Moment:	9615.32 kN-m
Total Slice Area:	40.5779 m2
Surface Horizontal Width:	18.8963 m
Surface Average Height:	2.1474 m

Group 2

Method: bishop simplified

FS	1.223730
Center:	27.275, 12.048
Radius:	17.416
Left Slip Surface Endpoint:	14.699, -0.000
Right Slip Surface Endpoint:	44.087, 7.500
Resisting Moment:	22172.7 kN-m
Driving Moment:	18118.9 kN-m
Total Slice Area:	214.396 m2
Surface Horizontal Width:	29.3876 m
Surface Average Height:	7.29544 m

Global Minimum Support Data

All Open Scenarios

No Supports Present

Valid and Invalid Surfaces

Group 1

Method: bishop simplified

Number of Valid Surfaces:	7342
Number of Invalid Surfaces:	0

Group 2

Method: bishop simplified

Number of Valid Surfaces:	4928
Number of Invalid Surfaces:	0

Slice Data

Group 1

Global Minimum Query (bishop simplified) - Safety Factor: 1.28155

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.283477	0.0039324	-0.287565	Limo	42.8581	0	30.4022	38.9619	0.181481	0	0.181481	0.028893	0.028893
2	0.283477	0.00408374	0.287565	Limo	42.8581	0	30.4022	38.9619	-0.153204	0	-0.153204	-0.000615227	-0.000615227
3	0.381861	0.923881	0.962549	Rilevato	0	29.2561	0.954391	1.2231	2.40181	0	2.40181	2.41784	2.41784
4	0.381861	2.70561	1.73751	Rilevato	0	29.2561	2.77867	3.561	6.99274	0	6.99274	7.07703	7.07703
5	0.381861	4.44982	2.51279	Rilevato	0	29.2561	4.54345	5.82266	11.434	0	11.434	11.6334	11.6334
6	0.381861	6.15645	3.28853	Rilevato	0	29.2561	6.24966	8.00925	15.7278	0	15.7278	16.0869	16.0869
7	0.381861	7.82544	4.06487	Rilevato	0	29.2561	7.89817	10.1219	19.8764	0	19.8764	20.4377	20.4377
8	0.381861	9.45667	4.84196	Rilevato	0	29.2561	9.48976	12.1616	23.8817	0	23.8817	24.6856	24.6856
9	0.381861	11.05	5.61995	Rilevato	0	29.2561	11.0251	14.1292	27.7455	0	27.7455	28.8304	28.8304
10	0.381861	12.5828	6.39898	Rilevato	0	29.2561	12.4825	15.997	31.4135	0	31.4135	32.8135	32.8135
11	0.381861	12.9099	7.17919	Rilevato	0	29.2561	12.734	16.3192	32.046	0	32.046	33.65	33.65
12	0.381861	12.5417	7.96075	Rilevato	0	29.2561	12.3001	15.7632	30.9544	0	30.9544	32.6745	32.6745
13	0.381861	12.1349	8.7438	Rilevato	0	29.2561	11.8332	15.1649	29.7794	0	29.7794	31.5994	31.5994
14	0.381861	11.6894	9.52851	Rilevato	0	29.2561	11.3336	14.5246	28.522	0	28.522	30.4244	30.4244
15	0.381861	11.2047	10.315	Rilevato	0	29.2561	10.8015	13.8427	27.1829	0	27.1829	29.1488	29.1488
16	0.381861	11.4607	11.1035	Rilevato	0	29.2561	10.9851	14.0779	27.6447	0	27.6447	29.8006	29.8006
17	0.381861	12.7381	11.8941	Rilevato	0	29.2561	12.1392	15.557	30.5492	0	30.5492	33.1061	33.1061
18	0.381861	13.9815	12.687	Rilevato	0	29.2561	13.2474	16.9772	33.3381	0	33.3381	36.3203	36.3203
19	0.381861	15.1845	13.4824	Rilevato	0	29.2561	14.3041	18.3314	35.9975	0	35.9975	39.427	39.427
20	0.381861	16.3468	14.2805	Rilevato	0	29.2561	15.3096	19.62	38.5279	0	38.5279	42.4247	42.4247
21	0.381861	17.4679	15.0814	Rilevato	0	29.2561	16.2641	20.8433	40.93	0	40.93	45.3128	45.3128
22	0.381861	18.5474	15.8853	Rilevato	0	29.2561	17.168	22.0016	43.2046	0	43.2046	48.0903	48.0903
23	0.381861	19.5848	16.6925	Rilevato	0	29.2561	18.0212	23.0951	45.3519	0	45.3519	50.756	50.756
24	0.381861	20.5796	17.503	Rilevato	0	29.2561	18.8241	24.124	47.3723	0	47.3723	53.3086	53.3086
25	0.381861	21.5312	18.3173	Rilevato	0	29.2561	19.5765	25.0883	49.2661	0	49.2661	55.747	55.747
26	0.381861	22.439	19.1353	Rilevato	0	29.2561	20.2788	25.9883	51.0335	0	51.0335	58.0696	58.0696
27	0.381861	23.3023	19.9574	Rilevato	0	29.2561	20.9308	26.8239	52.6742	0	52.6742	60.2748	60.2748
28	0.381861	24.1205	20.7839	Rilevato	0	29.2561	21.5327	27.5952	54.1887	0	54.1887	62.3612	62.3612
29	0.381861	24.8929	21.6149	Rilevato	0	29.2561	22.0842	28.302	55.5767	0	55.5767	64.3271	64.3271
30	0.381861	25.6186	22.4507	Rilevato	0	29.2561	22.5853	28.9442	56.838	0	56.838	66.1704	66.1704
31	0.381861	26.2969	23.2915	Rilevato	0	29.2561	23.036	29.5218	57.9721	0	57.9721	67.8889	67.8889
32	0.381861	26.9268	24.1377	Rilevato	0	29.2561	23.4362	30.0346	58.9789	0	58.9789	69.481	69.481
33	0.381861	27.5075	24.9896	Rilevato	0	29.2561	23.7854	30.4822	59.8579	0	59.8579	70.944	70.944
34	0.381861	28.0377	25.8474	Rilevato	0	29.2561	24.0836	30.8644	60.6084	0	60.6084	72.2755	72.2755
35	0.381861	28.4451	26.7115	Rilevato	0	29.2561	24.2694	31.1025	61.0762	0	61.0762	73.2885	73.2885
36	0.381861	27.5053	27.5821	Rilevato	0	29.2561	23.3076	29.8698	58.6554	0	58.6554	70.831	70.831
37	0.381861	26.0308	28.4598	Rilevato	0	29.2561	21.905	28.0724	55.1259	0	55.1259	66.9995	66.9995
38	0.381861	24.5011	29.3448	Rilevato	0	29.2561	20.4722	26.2361	51.5199	0	51.5199	63.0294	63.0294
39	0.381861	22.9148	30.2375	Rilevato	0	29.2561	19.0089	24.3609	47.8375	0	47.8375	58.9176	58.9176
40	0.381861	21.2705	31.1385	Rilevato	0	29.2561	21.0606	26.9902	53.0008	0	53.0008	65.7246	65.7246
41	0.381861	19.5663	32.0481	Rilevato	0	29.2561	24.1053	30.8922	60.663	0	60.663	75.7539	75.7539
42	0.381861	17.8006	32.9668	Rilevato	0	29.2561	22.4885	28.8201	56.594	0	56.594	71.1797	71.1797
43	0.381861	15.9715	33.8952	Rilevato	0	29.2561	20.8401	26.7076	52.4456	0	52.4456	66.447	66.447
44	0.381861	14.0768	34.8338	Rilevato	0	29.2561	19.16	24.5545	48.2178	0	48.2178	61.5511	61.5511
45	0.381861	12.1143	35.7832	Rilevato	0	29.2561	17.4483	22.3609	43.91	0	43.91	56.4864	56.4864
46	0.381861	10.0816	36.7441	Rilevato	0	29.2561	15.7048	20.1265	39.5224	0	39.5224	51.2472	51.2472
47	0.381861	7.97612	37.7172	Rilevato	0	29.2561	13.9294	17.8512	35.0546	0	35.0546	45.8271	45.8271
48	0.381861	5.79486	38.7033	Rilevato	0	29.2561	12.1221	15.5351	30.5064	0	30.5064	40.2192	40.2192
49	0.381861	3.53472	39.7031	Rilevato	0	29.2561	10.283	13.1782	25.878	0	25.878	34.4161	34.4161
50	0.381861	1.19226	40.7177	Rilevato	0	29.2561	8.412	10.7804	21.1695	0	21.1695	28.4095	28.4095

Group 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.22373

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.584938	3.3211	-44.8719	Limo con sabbia	36.047	0	26.7788	32.77	34.9978	0	34.9978	8.33849	8.33849
2	0.584938	9.66867	-42.2148	Limo con sabbia	36.683	0	27.2513	33.3482	43.7196	0	43.7196	18.9968	18.9968
3	0.584938	15.4613	-39.6654	Limo con sabbia	37.2634	0	27.6824	33.8758	51.6776	0	51.6776	28.7234	28.7234
4	0.584938	20.7603	-37.2072	Limo con sabbia	37.7944	0	28.0769	34.3585	58.9362	0	58.9362	37.6191	37.6191
5	0.584938	25.614	-34.8268	Limo con sabbia	38.2807	0	28.4381	34.8006	65.5487	0	65.5487	45.7639	45.7639
6	0.584938	30.0613	-32.5134	Limo con sabbia	38.7263	0	28.7692	35.2057	71.56	0	71.56	53.2225	53.2225
7	0.584938	34.1338	-30.2583	Limo con sabbia	39.1343	0	29.0723	35.5766	77.0073	0	77.0073	60.0472	60.0472
8	0.584938	37.9628	-28.0539	Limo con sabbia	39.5074	0	29.3495	35.9159	82.1025	0	82.1025	66.4616	66.4616
9	0.584938	44.3763	-25.8939	Limo con sabbia	39.8478	0	29.6024	36.2253	91.6695	0	91.6695	77.2992	77.2992
10	0.584938	51.7991	-23.7728	Limo con sabbia	40.1573	0	29.8323	36.5067	103.007	0	103.007	89.8664	89.8664
11	0.584938	58.9291	-21.6858	Limo con sabbia	40.4375	0	30.0404	36.7613	113.882	0	113.882	101.936	101.936
12	0.584938	65.7794	-19.6287	Limo con sabbia	40.6896	0	30.2277	36.9905	124.312	0	124.312	113.531	113.531
13	0.584938	72.3612	-17.5976	Limo con sabbia	40.9148	0	30.395	37.1953	134.31	0	134.31	124.67	124.67
14	0.584938	78.684	-15.5891	Limo con sabbia	41.1141	0	30.543	37.3764	143.889	0	143.889	135.367	135.367
15	0.584938	83.3365	-13.6001	Limo con sabbia	41.2882	0	30.6724	37.5347	150.632	0	150.632	143.211	143.211
16	0.584938	84.9089	-11.6277	Limo con sabbia	41.4379	0	30.7836	37.6708	152.125	0	152.125	145.791	145.791
17	0.584938	86.1637	-9.66917	Limo con sabbia	41.5636	0	30.877	37.7851	153.09	0	153.09	147.829	147.829
18	0.584938	87.5142	-7.72202	Limo con sabbia	41.6659	0	30.953	37.8781	154.229	0	154.229	150.032	150.032
19	0.584938	91.8324	-5.78381	Limo con sabbia	41.745	0	31.0117	37.95	160.45	0	160.45	157.308	157.308
20	0.584938	96.7289	-3.85223	Limo con sabbia	41.8014	0	31.0537	38.0013	167.666	0	167.666	165.575	165.575
21	0.584938	101.4	-1.92502	Limo con sabbia	41.8351	0	31.0787	38.0319	174.499	0	174.499	173.455	173.455
22	0.584938	105.846	0	Limo con sabbia	41.8464	0	31.0871	38.0422	180.952	0	180.952	180.952	180.952
23	0.584938	110.067	1.92502	Limo con sabbia	41.8351	0	31.0787	38.0319	187.02	0	187.02	188.065	188.065
24	0.584938	114.065	3.85223	Limo con sabbia	41.8014	0	31.0537	38.0013	192.704	0	192.704	194.795	194.795
25	0.584938	117.836	5.78381	Limo con sabbia	41.745	0	31.0117	37.95	197.996	0	197.996	201.137	201.137
26	0.584938	121.38	7.72202	Limo con sabbia	41.6659	0	30.953	37.8781	202.893	0	202.893	207.09	207.09
27	0.584938	124.693	9.66917	Limo con sabbia	41.5636	0	30.877	37.7851	207.387	0	207.387	212.648	212.648
28	0.584938	127.772	11.6277	Limo con sabbia	41.4379	0	30.7836	37.6708	211.471	0	211.471	217.805	217.805
29	0.584938	130.612	13.6001	Limo con sabbia	41.2882	0	30.6724	37.5347	215.132	0	215.132	222.552	222.552
30	0.584938	133.209	15.5891	Limo con sabbia	41.1141	0	30.543	37.3764	218.36	0	218.36	226.881	226.881
31	0.584938	134.854	17.5976	Limo con sabbia	40.9148	0	30.395	37.1953	219.941	0	219.941	229.582	229.582
32	0.584938	133.01	19.6287	Limo con sabbia	40.6896	0	30.2277	36.9905	215.535	0	215.535	226.316	226.316

33	0.584938	130.494	21.6858	Limo con sabbia	40.4375	0	30.0404	36.7613	209.952	0	209.952	221.898	221.898
34	0.584938	127.698	23.7728	Limo con sabbia	40.1573	0	29.8323	36.5067	214.401	0	214.401	227.542	227.542
35	0.584938	124.609	25.8939	Limo con sabbia	39.8478	0	29.6024	36.2253	223.224	0	223.224	237.594	237.594
36	0.584938	121.211	28.0539	Limo con sabbia	39.5074	0	29.3495	35.9159	216.019	0	216.019	231.66	231.66
37	0.584938	117.488	30.2583	Limo con sabbia	39.1343	0	29.0723	35.5766	208.202	0	208.202	225.162	225.162
38	0.584938	113.415	32.5134	Limo con sabbia	38.7263	0	28.7692	35.2057	199.725	0	199.725	218.062	218.062
39	0.584938	108.968	34.8268	Limo con sabbia	38.2807	0	28.4381	34.8006	190.529	0	190.529	210.314	210.314
40	0.584938	104.114	37.2072	Limo con sabbia	37.7944	0	28.0769	34.3585	180.547	0	180.547	201.864	201.864
41	0.584938	98.815	39.6654	Limo con sabbia	37.2634	0	27.6824	33.8758	169.688	0	169.688	192.642	192.642
42	0.584938	93.0224	42.2148	Limo con sabbia	36.683	0	27.2513	33.3482	157.839	0	157.839	182.562	182.562
43	0.584938	86.6748	44.8719	Limo con sabbia	36.047	0	26.7788	32.77	144.857	0	144.857	171.517	171.517
44	0.605037	82.3946	47.7089	Rilevato	0	29.2561	44.8995	54.9449	107.895	0	107.895	157.255	157.255
45	0.605037	74.3133	50.7618	Rilevato	0	29.2561	39.6896	48.5694	95.3759	0	95.3759	143.974	143.974
46	0.605037	65.2632	54.0301	Rilevato	0	29.2561	34.1629	41.8062	82.0951	0	82.0951	129.168	129.168
47	0.605037	54.9953	57.5816	Rilevato	0	29.2561	28.271	34.5961	67.9364	0	67.9364	112.453	112.453
48	0.605037	43.1072	61.5264	Rilevato	0	29.2561	21.9477	26.858	52.7412	0	52.7412	93.2083	93.2083
49	0.605037	28.8588	66.0688	Rilevato	0	29.2561	15.0981	18.476	36.2814	0	36.2814	70.3021	70.3021
50	0.605037	10.5113	71.6932	Rilevato	0	29.2561	7.57312	9.26745	18.1985	0	18.1985	41.0884	41.0884

Interslice Data

Group 1

Global Minimum Query (bishop simplified) - Safety Factor: 1.28155

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	19.4379	0	0	0	0
2	19.7214	-0.00142277	8.60637	0	0
3	20.0049	0	17.2127	0	0
4	20.3867	0.00641573	17.5612	0	0
5	20.7686	0.0179993	18.5398	0	0
6	21.1505	0.0347571	20.0807	0	0
7	21.5323	0.0566983	22.1187	0	0
8	21.9142	0.0838351	24.591	0	0
9	22.2961	0.116183	27.4371	0	0
10	22.6779	0.153759	30.5987	0	0
11	23.0598	0.196584	34.0132	0	0
12	23.4416	0.244684	37.3275	0	0
13	23.8235	0.298084	40.3648	0	0
14	24.2054	0.356816	43.1281	0	0
15	24.5872	0.420912	45.6216	0	0
16	24.9691	0.490412	47.8512	0	0
17	25.3509	0.565354	49.9683	0	0
18	25.7328	0.645784	52.1401	0	0
19	26.1147	0.731749	54.3257	0	0
20	26.4965	0.823302	56.4844	0	0
21	26.8784	0.920498	58.5775	0	0
22	27.2602	1.0234	60.5676	0	0
23	27.6421	1.13207	62.419	0	0
24	28.024	1.24658	64.0976	0	0
25	28.4058	1.367	65.5709	0	0
26	28.7877	1.49342	66.8078	0	0
27	29.1695	1.62591	67.7789	0	0
28	29.5514	1.76458	68.4561	0	0
29	29.9333	1.90951	68.8133	0	0
30	30.3151	2.06081	68.8254	0	0
31	30.697	2.2186	68.4694	0	0
32	31.0788	2.38299	67.7235	0	0
33	31.4607	2.5541	66.5679	0	0
34	31.8426	2.73208	64.9842	0	0
35	32.2244	2.91707	62.9558	0	0
36	32.6063	3.10922	60.4744	0	0
37	32.9882	3.3087	57.6614	0	0
38	33.37	3.51569	54.6039	0	0
39	33.7519	3.73037	51.3499	0	0
40	34.1337	3.95296	47.9505	0	0
41	34.5156	4.18366	43.7539	0	0
42	34.8975	4.42272	38.4437	0	0
43	35.2793	4.67039	33.0024	0	0
44	35.6612	4.92694	27.494	0	0
45	36.043	5.19267	21.987	0	0
46	36.4249	5.46791	16.5547	0	0
47	36.8068	5.753	11.2759	0	0
48	37.1886	6.04832	6.23518	0	0
49	37.5705	6.35428	1.52374	0	0
50	37.9523	6.67134	-2.7601	0	0
51	38.3342	7	0	0	0

Group 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.22373

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	14.6993	-5.42156e-15	0	0	0
2	15.2842	-0.582328	36.0414	0	0
3	15.8692	-1.11299	75.1794	0	0
4	16.4541	-1.59802	116.434	0	0
5	17.0391	-2.04213	159.029	0	0
6	17.624	-2.44908	202.335	0	0
7	18.2089	-2.82192	245.841	0	0
8	18.7939	-3.16316	289.121	0	0
9	19.3788	-3.47488	331.879	0	0
10	19.9637	-3.75884	375.222	0	0
11	20.5487	-4.01649	419.209	0	0
12	21.1336	-4.2491	463.268	0	0
13	21.7186	-4.45772	506.88	0	0
14	22.3035	-4.64324	549.574	0	0
15	22.8884	-4.80644	590.919	0	0
16	23.4734	-4.94795	630.173	0	0
17	24.0583	-5.06832	666.487	0	0
18	24.6433	-5.16798	699.802	0	0
19	25.2282	-5.2473	730.137	0	0
20	25.8131	-5.30654	757.781	0	0
21	26.3981	-5.34593	782.546	0	0
22	26.983	-5.36559	804.153	0	0
23	27.5679	-5.36559	822.333	0	0
24	28.1529	-5.34593	836.832	0	0
25	28.7378	-5.30654	847.404	0	0
26	29.3228	-5.2473	853.81	0	0
27	29.9077	-5.16798	855.819	0	0
28	30.4926	-5.06832	853.209	0	0
29	31.0776	-4.94795	845.759	0	0
30	31.6625	-4.80644	833.253	0	0
31	32.2475	-4.64324	815.48	0	0
32	32.8324	-4.45772	792.451	0	0
33	33.4173	-4.2491	765.165	0	0
34	34.0023	-4.01649	733.898	0	0
35	34.5872	-3.75884	696.103	0	0
36	35.1721	-3.47488	650.03	0	0
37	35.7571	-3.16316	599.856	0	0
38	36.342	-2.82192	545.812	0	0
39	36.927	-2.44908	488.172	0	0
40	37.5119	-2.04213	427.268	0	0
41	38.0968	-1.59802	363.506	0	0
42	38.6818	-1.11299	297.393	0	0
43	39.2667	-0.582328	229.57	0	0
44	39.8517	-3.19744e-14	160.877	0	0
45	40.4567	0.665135	116.273	0	0
46	41.0617	1.40597	69.6244	0	0
47	41.6668	2.23966	21.8495	0	0
48	42.2718	3.19236	-25.7721	0	0
49	42.8768	4.30793	-71.3316	0	0
50	43.4819	5.67127	-111.662	0	0
51	44.0869	7.5	0	0	0

Discharge Sections

Entity Information

Group 1

Shared Entities

Type	Coordinates (x,y)
External Boundary	0, 0 -1.42e-14, -30 91.7, -30 91.7, 0 70.7, 0 67.7, 2 65.7, 2 58.2, 7 56.35, 7 46.6, 7 44.1, 7 34.35, 7 32.5, 7 25, 2 23, 2 20, 0
Material Boundary	20, 0 70.7, 0

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	0, -5 91.7, -5	Assigned to: Rilevato Limo
Distributed Load	44.1, 7 34.35, 7	Constant DistributionOrientation: Normal to boundaryMagnitude: 20 kN/m2Creates Excess Pore Pressure: No
Distributed Load	56.35, 7 46.6, 7	Constant DistributionOrientation: Normal to boundaryMagnitude: 20 kN/m2Creates Excess Pore Pressure: No

Group 2

Shared Entities

Type	Coordinates (x,y)
External Boundary	0, 0 -1.42e-14, -30 91.7, -30 91.7, 0 69.45, -7.1e-15 58.2, 7.5 56.35, 7.5 46.6, 7.5 46.2, 7.5 44.1, 7.5 34.35, 7.5 32.5, 7.5 25, 2.5 23, 2.5 19.25, -7.1e-15
Material Boundary	19.25, -7.1e-15 34.95, -8.88178e-16 69.45, -7.1e-15
Material Boundary	34.95, -8.88178e-16 46.2, 7.5

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	0, 0 91.7, 0	Assigned to: Rilevato Limo con sabbia
Distributed Load	44.1, 7.5 34.35, 7.5	Constant DistributionOrientation: Normal to boundaryMagnitude: 20 kN/m2Creates Excess Pore Pressure: No
Distributed Load	56.35, 7.5 46.6, 7.5	Constant DistributionOrientation: Normal to boundaryMagnitude: 20 kN/m2Creates Excess Pore Pressure: No

rocscience

Asse Principale
Stabilità globale - SLV
Sezione Tipo A H=7.0 m e Sezione Tipo B H=7.5 m
Date Created: 03/05/2022, 10:43:36
Software Version: 9.02

Table of Contents

Slide Analysis Information

2022-05-03 Asse principale A1-sisma

Project Summary

File Name:	2022-05-03 Asse principale A1-sisma.slmd
Slide Modeler Version:	9.02
Project Title:	SLIDE - An Interactive Slope Stability Program
Date Created:	03/05/2022, 10:43:36

Currently Open Scenarios

Group Name	Scenario Name	Global Minimum	Compute Time
Group 1	Master Scenario	Bishop Simplified: 1.509810	00h:00m:00.988s
	Scenario 2	Bishop Simplified: 1.196350	00h:00m:01.65s
Group 2	Master Scenario	Bishop Simplified: 1.196090	00h:00m:00.981s
	Scenario 2	Bishop Simplified: 1.270430	00h:00m:00.902s

General Settings

Units of Measurement:	Metric Units
Time Units:	days
Permeability Units:	meters/second
Data Output:	Standard
Failure Direction:	Right to Left

Design Standard

All Open Scenarios

Selected Type:	Eurocode 7 (User Defined)
Name:	SISMA

Type	Partial Factor
Permanent Actions: Unfavourable	1
Permanent Actions: Favourable	0
Variable Actions: Unfavourable	1
Variable Actions: Favourable	1
Effective cohesion	1
Coefficient of shearing resistance	1
Undrained strength	1
Weight density	1
Shear strength (other models)	1
Earth resistance	1.2
Tensile and plate strength	1
Shear strength	1
Compressive strength	1
Bond strength	1
Seismic Coefficient	1

Analysis Options

All Open Scenarios

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

All Open Scenarios

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [kN/m3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [kPa]:	0
Advanced Groundwater Method:	None

Random Numbers

All Open Scenarios

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

All Open Scenarios

Surface Type:	Circular
Search Method:	Auto Refine Search
Divisions along slope:	20
Circles per division:	10
Number of iterations:	10
Divisions to use in next iteration:	50%
Composite Surfaces:	Disabled
Minimum Elevation:	Not Defined
Minimum Depth [m]:	2
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Group 1 - Master Scenario

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.105
Seismic Load Coefficient (Vertical):	0.052

Group 1 - Scenario 2

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.105
Seismic Load Coefficient (Vertical):	-0.052

Group 2 - Master Scenario

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.105
Seismic Load Coefficient (Vertical):	0.052

Group 2 - Scenario 2

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.105
Seismic Load Coefficient (Vertical):	-0.052

Loading

All Open Scenarios

Distribution:	Constant
Magnitude [kPa]:	6
Orientation:	Normal to boundary
Load Action:	Live

Distribution:	Constant
Magnitude [kPa]:	6
Orientation:	Normal to boundary
Load Action:	Live

Materials

Rilevato	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	19
Cohesion [kPa]	0
Friction Angle [deg]	35
Water Surface	Assigned per scenario
Hu Value	1
Limo	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	60
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Limo con sabbia	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	50
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	1.6
Water Surface	Assigned per scenario
Hu Value	0

Materials In Use

Material	Group 1	Scenario 2	Group 2	Scenario 2
Rilevato	✓	✓	✓	✓
Limo	✓	✓	✗	✗
Limo con sabbia	✗	✗	✓	✓

Global Minimums

Group 1 - Master Scenario

Method: bishop simplified

FS	1.509810
Center:	27.863, 21.064
Radius:	33.436
Left Slip Surface Endpoint:	1.896, 0.000
Right Slip Surface Endpoint:	58.197, 7.000
Resisting Moment:	133516 kN-m
Driving Moment:	88432.1 kN-m
Total Slice Area:	653.598 m2
Surface Horizontal Width:	56.3006 m
Surface Average Height:	11.6091 m

Group 1 - Scenario 2

Method: bishop simplified

FS	1.196350
Center:	19.727, 28.240
Radius:	28.242
Left Slip Surface Endpoint:	19.443, 0.000
Right Slip Surface Endpoint:	38.340, 7.000
Resisting Moment:	11816.2 kN-m
Driving Moment:	9876.9 kN-m
Total Slice Area:	40.6152 m2
Surface Horizontal Width:	18.8967 m
Surface Average Height:	2.14933 m

Group 2 - Master Scenario

Method: bishop simplified

FS	1.196090
Center:	27.220, 21.788
Radius:	34.115
Left Slip Surface Endpoint:	0.969, -0.000
Right Slip Surface Endpoint:	58.199, 7.500
Resisting Moment:	114897 kN-m
Driving Moment:	96060.7 kN-m
Total Slice Area:	673.469 m2
Surface Horizontal Width:	57.2298 m
Surface Average Height:	11.7678 m

Group 2 - Scenario 2

Method: bishop simplified

FS	1.270430
Center:	27.067, 21.867
Radius:	34.287
Left Slip Surface Endpoint:	0.658, -0.000
Right Slip Surface Endpoint:	58.199, 7.500
Resisting Moment:	115789 kN-m
Driving Moment:	91141.8 kN-m
Total Slice Area:	679.672 m2
Surface Horizontal Width:	57.5411 m
Surface Average Height:	11.8119 m

Global Minimum Support Data

All Open Scenarios

No Supports Present

Valid and Invalid Surfaces

Group 1 - Master Scenario

Method: bishop simplified

Number of Valid Surfaces:	5196
Number of Invalid Surfaces:	0

Group 1 - Scenario 2

Method: bishop simplified

Number of Valid Surfaces:	7324
Number of Invalid Surfaces:	0

Group 2

Method: bishop simplified

Number of Valid Surfaces:	5263
Number of Invalid Surfaces:	0

Slice Data

Group 1 - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.50981

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	1.11293	14.1314	-49.4835	Limo	61.3023	0	33.8355	51.0852	60.8672	0	60.8672	21.274	21.274
2	1.11293	41.0453	-46.6269	Limo	63.7826	0	35.2046	53.1522	83.5115	0	83.5115	46.2486	46.2486
3	1.11293	65.455	-43.9145	Limo	66.0321	0	36.4462	55.0268	103.979	0	103.979	68.8879	68.8879
4	1.11293	87.6994	-41.3209	Limo	68.0821	0	37.5776	56.7351	122.54	0	122.54	89.5034	89.5034
5	1.11293	108.036	-38.827	Limo	69.9562	0	38.6121	58.2969	139.409	0	139.409	108.334	108.334
6	1.11293	126.664	-36.4178	Limo	71.673	0	39.5596	59.7275	154.749	0	154.749	125.565	125.565
7	1.11293	143.744	-34.0813	Limo	73.247	0	40.4284	61.0392	168.697	0	168.697	141.344	141.344
8	1.136	162.861	-31.7848	Limo	74.7039	0	41.2325	62.2533	181.477	0	181.477	155.927	155.927
9	1.136	177.783	-29.5211	Limo	76.0511	0	41.9761	63.3759	193.158	0	193.158	169.389	169.389
10	1.136	191.404	-27.307	Limo	77.2809	0	42.6548	64.4007	203.676	0	203.676	181.654	181.654
11	1.136	203.804	-25.1363	Limo	78.4004	0	43.2728	65.3337	213.097	0	213.097	192.793	192.793
12	1.136	215.05	-23.0036	Limo	79.4157	0	43.8332	66.1798	221.478	0	221.478	202.868	202.868
13	1.136	225.197	-20.9041	Limo	80.3319	0	44.3389	66.9433	228.866	0	228.866	211.931	211.931
14	1.136	234.295	-18.8337	Limo	81.1533	0	44.7922	67.6277	235.302	0	235.302	220.024	220.024
15	1.136	242.383	-16.7885	Limo	81.8835	0	45.1952	68.2362	240.821	0	240.821	227.186	227.186
16	1.136	249.495	-14.7652	Limo	82.5256	0	45.5497	68.7714	245.451	0	245.451	233.446	233.446
17	1.136	262.602	-12.7605	Limo	83.0823	0	45.8569	69.2352	255.645	0	255.645	245.26	245.26
18	1.136	284.141	-10.7716	Limo	83.5557	0	46.1182	69.6297	273.658	0	273.658	264.884	264.884
19	1.136	304.184	-8.79583	Limo	83.9476	0	46.3345	69.9563	290.294	0	290.294	283.124	283.124
20	1.136	311.867	-6.83052	Limo	84.2594	0	46.5066	70.2162	295.49	0	295.49	289.919	289.919
21	1.136	316.658	-4.87326	Limo	84.4924	0	46.6352	70.4103	298.014	0	298.014	294.038	294.038
22	1.136	332.838	-2.9217	Limo	84.6472	0	46.7206	70.5393	311.087	0	311.087	308.703	308.703
23	1.136	350.04	-0.973523	Limo	84.7245	0	46.7633	70.6037	325.11	0	325.11	324.315	324.315
24	1.136	366.386	0.973523	Limo	84.7245	0	46.7633	70.6037	338.34	0	338.34	339.135	339.135
25	1.136	381.877	2.9217	Limo	84.6472	0	46.7206	70.5393	350.777	0	350.777	353.162	353.162
26	1.136	396.508	4.87326	Limo	84.4924	0	46.6352	70.4103	362.416	0	362.416	366.392	366.392
27	1.136	410.275	6.83052	Limo	84.2594	0	46.5066	70.2162	373.251	0	373.251	378.822	378.822
28	1.136	416.278	8.79583	Limo	83.9476	0	46.3345	69.9563	376.893	0	376.893	384.063	384.063
29	1.136	411.992	10.7716	Limo	83.5557	0	46.1182	69.6297	372.736	0	372.736	381.51	381.51
30	1.136	406.749	12.7605	Limo	83.0823	0	45.8569	69.2352	370.21	0	370.21	380.595	380.595
31	1.136	400.583	14.7652	Limo	82.5256	0	45.5497	68.7714	362.556	0	362.556	374.561	374.561
32	1.136	393.471	16.7885	Limo	81.8835	0	45.1952	68.2362	354.014	0	354.014	367.649	367.649
33	1.136	385.383	18.8337	Limo	81.1533	0	44.7922	67.6277	344.553	0	344.553	359.831	359.831
34	1.136	376.286	20.9041	Limo	80.3319	0	44.3389	66.9433	334.14	0	334.14	351.075	351.075
35	1.136	366.138	23.0036	Limo	79.4157	0	43.8332	66.1798	322.734	0	322.734	341.343	341.343
36	1.136	354.893	25.1363	Limo	78.4004	0	43.2728	65.3337	310.286	0	310.286	330.59	330.59
37	1.136	342.493	27.307	Limo	77.2809	0	42.6548	64.4007	296.741	0	296.741	318.763	318.763
38	1.136	328.871	29.5211	Limo	76.0511	0	41.9761	63.3759	277.79	0	277.79	301.559	301.559
39	1.136	313.95	31.7848	Limo	74.7039	0	41.2325	62.2533	260.075	0	260.075	285.626	285.626
40	1.11293	291.763	34.0813	Limo	73.247	0	40.4284	61.0392	245.944	0	245.944	273.297	273.297
41	1.11293	274.683	36.4178	Limo	71.673	0	39.5596	59.7275	230.626	0	230.626	259.811	259.811
42	1.11293	256.055	38.827	Limo	69.9562	0	38.6121	58.2969	210.75	0	210.75	241.825	241.825
43	1.11293	235.719	41.3209	Limo	68.0821	0	37.5776	56.7351	189.172	0	189.172	222.209	222.209
44	1.11293	213.474	43.9145	Limo	66.0321	0	36.4462	55.0268	165.681	0	165.681	200.772	200.772
45	1.11293	189.064	46.6269	Limo	63.7826	0	35.2046	53.1522	140.001	0	140.001	177.264	177.264
46	1.11293	162.151	49.4835	Limo	61.3023	0	33.8355	51.0852	111.765	0	111.765	151.358	151.358
47	1.09187	130.465	52.488	Rilevato	0	35	31.7307	47.9073	82.1027	0	82.1027	123.437	123.437
48	1.09187	99.1186	55.6842	Rilevato	0	35	23.3574	35.2652	60.4366	0	60.4366	94.657	94.657
49	1.09187	63.5492	59.1696	Rilevato	0	35	13.7189	20.713	35.4975	0	35.4975	58.4836	58.4836
50	1.09187	22.2865	63.0608	Rilevato	0	35	4.33907	6.55117	11.2272	0	11.2272	19.7655	19.7655

Group 1 - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.19635

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.283754	0.00394386	-0.287841	Limo	60.0014	0	41.7948	50.0012	0.264914	0	0.264914	0.0549442	0.0549442
2	0.283754	0.004626	0.287841	Limo	60.0014	0	41.7948	50.0012	-0.236282	0	-0.236282	-0.0263127	-0.0263127
3	0.381858	0.95041	0.963093	Rilevato	0	35	1.13961	1.36337	2.33652	0	2.33652	2.35567	2.35567
4	0.381858	2.73209	1.73804	Rilevato	0	35	3.2505	3.88873	6.66441	0	6.66441	6.76304	6.76304
5	0.381858	4.47625	2.5133	Rilevato	0	35	5.28447	6.32207	10.8346	0	10.8346	11.0666	11.0666
6	0.381858	6.18284	3.28902	Rilevato	0	35	7.24314	8.66533	14.8504	0	14.8504	15.2667	15.2667
7	0.381858	7.85177	4.06535	Rilevato	0	35	9.12801	10.9203	18.715	0	18.715	19.3638	19.3638
8	0.381858	9.48296	4.84243	Rilevato	0	35	10.9405	13.0887	22.4311	0	22.4311	23.358	23.358
9	0.381858	11.0763	5.6204	Rilevato	0	35	12.682	15.1721	26.0016	0	26.0016	27.2497	27.2497
10	0.381858	12.6046	6.39941	Rilevato	0	35	14.3231	17.1354	29.3661	0	29.3661	30.9726	30.9726
11	0.381858	12.9097	7.17961	Rilevato	0	35	14.5593	17.418	29.8507	0	29.8507	31.6847	31.6847
12	0.381858	12.5414	7.96116	Rilevato	0	35	14.0379	16.7942	28.7815	0	28.7815	30.7447	30.7447
13	0.381858	12.1346	8.74419	Rilevato	0	35	13.4808	16.1278	27.6395	0	27.6395	29.713	29.713
14	0.381858	11.689	9.52888	Rilevato	0	35	12.8886	15.4193	26.4253	0	26.4253	28.5888	28.5888
15	0.381858	11.2044	10.3154	Rilevato	0	35	12.2619	14.6695	25.1403	0	25.1403	27.372	27.372
16	0.381858	11.4848	11.1038	Rilevato	0	35	12.4748	14.9242	25.5768	0	25.5768	28.0251	28.0251
17	0.381858	12.7641	11.8944	Rilevato	0	35	13.7606	16.4625	28.2131	0	28.2131	31.1115	31.1115
18	0.381858	14.0074	12.6873	Rilevato	0	35	14.9879	17.9308	30.7295	0	30.7295	34.1037	34.1037
19	0.381858	15.2104	13.4827	Rilevato	0	35	16.153	19.3246	33.118	0	33.118	36.9909	36.9909
20	0.381858	16.3727	14.2808	Rilevato	0	35	17.2565	20.6448	35.3807	0	35.3807	39.7731	39.7731
21	0.381858	17.4938	15.0817	Rilevato	0	35	18.299	21.892	37.5179	0	37.5179	42.4491	42.4491
22	0.381858	18.5733	15.8856	Rilevato	0	35	19.281	23.0668	39.5315	0	39.5315	45.0186	45.0186
23	0.381858	19.6107	16.6927	Rilevato	0	35	20.203	24.1699	41.4217	0	41.4217	47.4801	47.4801
24	0.381858	20.6054	17.5033	Rilevato	0	35	21.0655	25.2017	43.1902	0	43.1902	49.8334	49.8334
25	0.381858	21.557	18.3174	Rilevato	0	35	21.8689	26.1628	44.8372	0	44.8372	52.077	52.077
26	0.381858	22.4647	19.1355	Rilevato	0	35	22.6134	27.0535	46.3637	0	46.3637	54.21	54.21
27	0.381858	23.328	19.9576	Rilevato	0	35	23.2995	27.8743	47.7704	0	47.7704	56.2312	56.2312
28	0.381858	24.1462	20.784	Rilevato	0	35	23.9272	28.6253	49.0575	0	49.0575	58.1389	58.1389
29	0.381858	24.9186	21.615	Rilevato	0	35	24.4969	29.3069	50.2255	0	50.2255	59.932	59.932
30	0.381858	25.6443	22.4508	Rilevato	0	35	25.0088	29.9193	51.2751	0	51.2751	61.6089	61.6089
31	0.381858	26.3226	23.2916	Rilevato	0	35	25.4629	30.4626	52.2061	0	52.2061	63.1677	63.1677
32	0.381858	26.9525	24.1378	Rilevato	0	35	25.8595	30.937	53.0191	0	53.0191	64.6071	64.6071
33	0.381858	27.5331	24.9897	Rilevato	0	35	26.1984	31.3424	53.7139	0	53.7139	65.9247	65.9247
34	0.381858	28.0634	25.8474	Rilevato	0	35	26.4795	31.6788	54.2905	0	54.2905	67.1182	67.1182
35	0.381858	28.4632	26.7115	Rilevato	0	35	26.6292	31.8579	54.5974	0	54.5974	67.9972	67.9972
36	0.381858	27.5048	27.5821	Rilevato	0	35	25.5113	30.5205	52.3054	0	52.3054	65.6323	65.6323
37	0.381858	26.0303	28.4598	Rilevato	0	35	23.933	28.6322	49.0694	0	49.0694	62.0422	62.0422
38	0.381858	24.5006	29.3448	Rilevato	0	35	22.3267	26.7106	45.776	0	45.776	58.3281	58.3281
39	0.381858	22.9144	30.2375	Rilevato	0	35	20.6929	24.7559	42.4262	0	42.4262	54.4879	54.4879
40	0.381858	21.27	31.1384	Rilevato	0	35	19.9997	23.9267	41.0051	0	41.0051	53.088	53.088
41	0.381858	19.5659	32.048	Rilevato	0	35	19.4849	23.3108	39.9494	0	39.9494	52.1476	52.1476
42	0.381858	17.8003	32.9667	Rilevato	0	35	17.7486	21.2335	36.3895	0	36.3895	47.9009	47.9009
43	0.381858	15.9711	33.895	Rilevato	0	35	15.9851	19.1238	32.7739	0	32.7739	43.5135	43.5135
44	0.381858	14.0765	34.8336	Rilevato	0	35	14.1948	16.9819	29.1033	0	29.1033	38.9813	38.9813
45	0.381858	12.1141	35.783	Rilevato	0	35	12.3778	14.8082	25.378	0	25.378	34.2996	34.2996
46	0.381858	10.0814	36.7439	Rilevato	0	35	10.5345	12.603	21.5989	0	21.5989	29.4637	29.4637
47	0.381858	7.97594	37.717	Rilevato	0	35	8.66536	10.3668	17.7665	0	17.7665	24.4679	24.4679
48	0.381858	5.79473	38.703	Rilevato	0	35	6.77072	8.10015	13.8819	0	13.8819	19.3068	19.3068
49	0.381858	3.53464	39.7029	Rilevato	0	35	4.85106	5.80356	9.94602	0	9.94602	13.9739	13.9739
50	0.381858	1.19223	40.7174	Rilevato	0	35	2.90701	3.4778	5.96017	0	5.96017	8.46213	8.46213

Group 2 - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.19609

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.898863	9.11127	-49.1535	Limo con sabbia	50.8317	0	35.4151	42.3597	59.8166	0	59.8166	18.8551	18.8551
2	0.898863	26.6391	-46.8946	Limo con sabbia	52.4317	0	36.5299	43.6931	78.0117	0	78.0117	38.9823	38.9823
3	1.16444	58.3688	-44.4207	Limo con sabbia	54.1129	0	37.7013	45.0941	97.0676	0	97.0676	60.1211	60.1211
4	1.16444	83.1201	-41.7409	Limo con sabbia	55.857	0	38.9164	46.5475	116.761	0	116.761	82.0379	82.0379
5	1.16444	105.686	-39.169	Limo con sabbia	57.4471	0	40.0242	47.8725	134.608	0	134.608	102.002	102.002
6	1.16444	126.306	-36.6881	Limo con sabbia	58.9	0	41.0365	49.0834	150.798	0	150.798	120.224	120.224
7	1.16444	145.169	-34.2851	Limo con sabbia	60.2292	0	41.9626	50.191	165.482	0	165.482	136.873	136.873
8	1.16444	162.427	-31.9491	Limo con sabbia	61.4453	0	42.8098	51.2044	178.779	0	178.779	152.082	152.082
9	1.16444	178.203	-29.6711	Limo con sabbia	62.5569	0	43.5843	52.1308	190.793	0	190.793	165.962	165.962
10	1.16444	192.601	-27.4438	Limo con sabbia	63.5714	0	44.2911	52.9762	201.604	0	201.604	178.603	178.603
11	1.16444	205.704	-25.2606	Limo con sabbia	64.4948	0	44.9344	53.7456	211.284	0	211.284	190.081	190.081
12	1.16444	217.586	-23.116	Limo con sabbia	65.332	0	45.5177	54.4433	219.891	0	219.891	200.461	200.461
13	1.16444	228.305	-21.0053	Limo con sabbia	66.0873	0	46.044	55.0728	227.475	0	227.475	209.795	209.795
14	1.16444	237.914	-18.924	Limo con sabbia	66.7644	0	46.5157	55.637	234.078	0	234.078	218.13	218.13
15	1.16444	246.455	-16.8684	Limo con sabbia	67.3662	0	46.935	56.1385	239.735	0	239.735	225.503	225.503
16	1.16444	253.965	-14.835	Limo con sabbia	67.8954	0	47.3037	56.5795	244.477	0	244.477	231.948	231.948
17	1.16444	266.599	-12.8205	Limo con sabbia	68.3542	0	47.6233	56.9618	253.86	0	253.86	243.023	243.023
18	1.16444	289.102	-10.822	Limo con sabbia	68.7442	0	47.8951	57.2868	272.171	0	272.171	263.016	263.016
19	1.16444	310.859	-8.8368	Limo con sabbia	69.0671	0	48.12	57.5559	289.819	0	289.819	282.338	282.338
20	1.16444	328.337	-6.86223	Limo con sabbia	69.324	0	48.299	57.77	303.607	0	303.607	297.794	297.794
21	1.16444	332.274	-4.89583	Limo con sabbia	69.5159	0	48.4328	57.93	305.168	0	305.168	301.019	301.019
22	1.16444	341.14	-2.93521	Limo con sabbia	69.6435	0	48.5217	58.0363	311.185	0	311.185	308.697	308.697
23	1.16444	359.143	-0.978022	Limo con sabbia	69.7072	0	48.566	58.0893	325.459	0	325.459	324.63	324.63
24	1.16444	376.318	0.978022	Limo con sabbia	69.7072	0	48.566	58.0893	338.985	0	338.985	339.815	339.815
25	1.16444	392.59	2.93521	Limo con sabbia	69.6435	0	48.5217	58.0363	351.695	0	351.695	354.183	354.183
26	1.16444	407.955	4.89583	Limo con sabbia	69.5159	0	48.4328	57.93	363.584	0	363.584	367.732	367.732
27	1.16444	422.406	6.86223	Limo con sabbia	69.324	0	48.299	57.77	374.643	0	374.643	380.455	380.455
28	1.16444	434.074	8.8368	Limo con sabbia	69.0671	0	48.12	57.5559	383.181	0	383.181	390.662	390.662
29	1.16444	431.944	10.822	Limo con sabbia	68.7442	0	47.8951	57.2868	379.248	0	379.248	388.404	388.404
30	1.16444	426.408	12.8205	Limo con sabbia	68.3542	0	47.6233	56.9618	377.489	0	377.489	388.327	388.327
31	1.16444	419.898	14.835	Limo con sabbia	67.8954	0	47.3037	56.5795	370.318	0	370.318	382.847	382.847
32	1.16444	412.388	16.8684	Limo con sabbia	67.3662	0	46.935	56.1385	361.489	0	361.489	375.721	375.721

33	1.16444	403.847	18.924	Limo con sabbia	66.7644	0	46.5157	55.637	351.714	0	351.714	367.661	367.661
34	1.16444	394.238	21.0053	Limo con sabbia	66.0873	0	46.044	55.0728	340.955	0	340.955	358.634	358.634
35	1.16444	383.519	23.116	Limo con sabbia	65.332	0	45.5177	54.4433	329.17	0	329.17	348.6	348.6
36	1.16444	371.637	25.2606	Limo con sabbia	64.4948	0	44.9344	53.7456	316.309	0	316.309	337.511	337.511
37	1.16444	358.534	27.4438	Limo con sabbia	63.5714	0	44.2911	52.9762	302.312	0	302.312	325.313	325.313
38	1.16444	344.136	29.6711	Limo con sabbia	62.5569	0	43.5843	52.1308	284.087	0	284.087	308.918	308.918
39	1.16444	328.36	31.9491	Limo con sabbia	61.4453	0	42.8098	51.2044	264.616	0	264.616	291.313	291.313
40	1.16444	311.102	34.2851	Limo con sabbia	60.2292	0	41.9626	50.191	248.872	0	248.872	277.481	277.481
41	1.16444	292.239	36.6881	Limo con sabbia	58.9	0	41.0365	49.0834	233.331	0	233.331	263.906	263.906
42	1.16444	271.619	39.169	Limo con sabbia	57.4471	0	40.0242	47.8725	212.264	0	212.264	244.87	244.87
43	1.16444	249.053	41.7409	Limo con sabbia	55.857	0	38.9164	46.5475	189.337	0	189.337	224.06	224.06
44	1.16444	224.302	44.4207	Limo con sabbia	54.1129	0	37.7013	45.0941	164.308	0	164.308	201.254	201.254
45	0.898863	154.727	46.8946	Limo con sabbia	52.4317	0	36.5299	43.6931	140.253	0	140.253	179.283	179.283
46	0.898863	137.199	49.1535	Limo con sabbia	50.8317	0	35.4151	42.3597	117.42	0	117.42	158.382	158.382
47	1.18195	151.492	51.917	Rilevato	0	35	39.3269	47.0385	80.6134	0	80.6134	130.8	130.8
48	1.18195	115.411	55.2688	Rilevato	0	35	28.7564	34.3952	58.9456	0	58.9456	100.427	100.427
49	1.18195	74.236	58.935	Rilevato	0	35	16.9947	20.3272	34.8362	0	34.8362	63.0477	63.0477
50	1.18195	26.1025	63.0493	Rilevato	0	35	5.26823	6.30128	10.799	0	10.799	21.1605	21.1605

Group 2 - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.27043

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.896275	9.08296	-49.2287	Limo con sabbia	50.8315	0	33.3427	42.3596	56.0065	0	56.0065	17.3395	17.3395
2	0.896275	26.5603	-46.9841	Limo con sabbia	52.4315	0	34.3922	43.6929	72.3248	0	72.3248	35.4642	35.4642
3	1.17222	58.8881	-44.5127	Limo con sabbia	54.1219	0	35.5011	45.1016	89.5058	0	89.5058	54.6036	54.6036
4	1.17222	84.0487	-41.8246	Limo con sabbia	55.8831	0	36.6563	46.5692	107.334	0	107.334	74.5314	74.5314
5	1.17222	106.982	-39.2454	Limo con sabbia	57.4884	0	37.7093	47.907	123.483	0	123.483	92.6787	92.6787
6	1.17222	127.934	-36.758	Limo con sabbia	58.9549	0	38.6712	49.1291	138.125	0	138.125	109.239	109.239
7	1.17222	147.097	-34.349	Limo con sabbia	60.2963	0	39.5511	50.2469	151.395	0	151.395	124.366	124.366
8	1.17222	164.627	-32.0075	Limo con sabbia	61.5233	0	40.3559	51.2694	163.406	0	163.406	138.182	138.182
9	1.17222	180.651	-29.7245	Limo con sabbia	62.6449	0	41.0917	52.2041	174.249	0	174.249	150.787	150.787
10	1.17222	195.272	-27.4924	Limo con sabbia	63.6683	0	41.7629	53.0569	184	0	184	162.267	162.267
11	1.17222	208.578	-25.3048	Limo con sabbia	64.5997	0	42.3739	53.8331	192.722	0	192.722	172.688	172.688
12	1.17222	220.643	-23.156	Limo con sabbia	65.4442	0	42.9278	54.5368	200.47	0	200.47	182.11	182.11
13	1.17222	231.527	-21.0413	Limo con sabbia	66.206	0	43.4276	55.1717	207.288	0	207.288	190.581	190.581
14	1.17222	241.282	-18.9562	Limo con sabbia	66.8889	0	43.8755	55.7407	213.214	0	213.214	198.144	198.144
15	1.17222	249.953	-16.8968	Limo con sabbia	67.4958	0	44.2736	56.2465	218.281	0	218.281	204.832	204.832
16	1.17222	257.578	-14.8598	Limo con sabbia	68.0295	0	44.6237	56.6913	222.516	0	222.516	210.676	210.676
17	1.17222	268.075	-12.8418	Limo con sabbia	68.4921	0	44.9272	57.0768	229.087	0	229.087	218.846	218.846
18	1.17222	290.143	-10.8399	Limo con sabbia	68.8855	0	45.1851	57.4045	245.027	0	245.027	236.375	236.375
19	1.17222	312.2	-8.85136	Limo con sabbia	69.2111	0	45.3987	57.6759	260.966	0	260.966	253.896	253.896
20	1.17222	331.389	-6.8735	Limo con sabbia	69.4701	0	45.5687	57.8918	274.593	0	274.593	269.1	269.1
21	1.17222	336.604	-4.90386	Limo con sabbia	69.6636	0	45.6956	58.053	276.924	0	276.924	273.003	273.003
22	1.17222	343.51	-2.94001	Limo con sabbia	69.7923	0	45.7799	58.1602	280.626	0	280.626	278.275	278.275
23	1.17222	361.345	-0.979621	Limo con sabbia	69.8565	0	45.822	58.2137	293.167	0	293.167	292.384	292.384
24	1.17222	378.75	0.979621	Limo con sabbia	69.8565	0	45.822	58.2137	305.363	0	305.363	306.146	306.146
25	1.17222	395.238	2.94001	Limo con sabbia	69.7923	0	45.7799	58.1602	316.816	0	316.816	319.167	319.167
26	1.17222	410.806	4.90386	Limo con sabbia	69.6636	0	45.6956	58.053	327.523	0	327.523	331.444	331.444
27	1.17222	425.447	6.8735	Limo con sabbia	69.4701	0	45.5687	57.8918	337.477	0	337.477	342.97	342.97
28	1.17222	437.991	8.85136	Limo con sabbia	69.2111	0	45.3987	57.6759	345.729	0	345.729	352.799	352.799
29	1.17222	436.848	10.8399	Limo con sabbia	68.8855	0	45.1851	57.4045	342.906	0	342.906	351.558	351.558
30	1.17222	431.228	12.8418	Limo con sabbia	68.4921	0	44.9272	57.0768	341.175	0	341.175	351.416	351.416
31	1.17222	424.619	14.8598	Limo con sabbia	68.0295	0	44.6237	56.6913	335.191	0	335.191	347.031	347.031
32	1.17222	416.995	16.8968	Limo con sabbia	67.4958	0	44.2736	56.2465	327.095	0	327.095	340.544	340.544

33	1.17222	408.324	18.9562	Limo con sabbia	66.8889	0	43.8755	55.7407	318.137	0	318.137	333.207	333.207
34	1.17222	398.568	21.0413	Limo con sabbia	66.206	0	43.4276	55.1717	308.284	0	308.284	324.99	324.99
35	1.17222	387.684	23.156	Limo con sabbia	65.4442	0	42.9278	54.5368	297.497	0	297.497	315.857	315.857
36	1.17222	375.62	25.3048	Limo con sabbia	64.5997	0	42.3739	53.8331	285.732	0	285.732	305.766	305.766
37	1.17222	362.313	27.4924	Limo con sabbia	63.6683	0	41.7629	53.0569	272.931	0	272.931	294.665	294.665
38	1.17222	347.692	29.7245	Limo con sabbia	62.6449	0	41.0917	52.2041	256.217	0	256.217	279.679	279.679
39	1.17222	331.669	32.0075	Limo con sabbia	61.5233	0	40.3559	51.2694	237.959	0	237.959	263.183	263.183
40	1.17222	314.138	34.349	Limo con sabbia	60.2963	0	39.5511	50.2469	223.636	0	223.636	250.665	250.665
41	1.17222	294.975	36.758	Limo con sabbia	58.9549	0	38.6712	49.1291	209.891	0	209.891	238.777	238.777
42	1.17222	274.024	39.2454	Limo con sabbia	57.4884	0	37.7093	47.907	190.644	0	190.644	221.449	221.449
43	1.17222	251.09	41.8246	Limo con sabbia	55.8831	0	36.6563	46.5692	169.7	0	169.7	202.502	202.502
44	1.17222	225.93	44.5127	Limo con sabbia	54.1219	0	35.5011	45.1016	146.832	0	146.832	181.735	181.735
45	0.896275	154.28	46.9841	Limo con sabbia	52.4315	0	34.3922	43.6929	124.951	0	124.951	161.812	161.812
46	0.896275	136.802	49.2287	Limo con sabbia	50.8315	0	33.3427	42.3596	104.298	0	104.298	142.965	142.965
47	1.18067	151.31	51.9772	Rilevato	0	35	34.3469	43.6353	74.7815	0	74.7815	118.708	118.708
48	1.18067	115.239	55.3127	Rilevato	0	35	25.1927	32.0055	54.8505	0	54.8505	91.2505	91.2505
49	1.18067	74.1	58.9599	Rilevato	0	35	14.8885	18.9148	32.4158	0	32.4158	57.1552	57.1552
50	1.18067	26.0475	63.0506	Rilevato	0	35	4.60927	5.85575	10.0355	0	10.0355	19.1014	19.1014

Interslice Data

Group 1 - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.50981

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	1.89636	0	0	0	0
2	3.00929	-1.30231	115.439	0	0
3	4.12221	-2.48031	248.683	0	0
4	5.23514	-3.55184	393.786	0	0
5	6.34807	-4.53029	546.296	0	0
6	7.46099	-5.42597	702.789	0	0
7	8.57392	-6.24702	860.571	0	0
8	9.68685	-7	1017.49	0	0
9	10.8228	-7.70394	1174.98	0	0
10	11.9589	-8.34721	1328.25	0	0
11	13.0949	-8.93372	1476.06	0	0
12	14.2309	-9.46674	1617.4	0	0
13	15.3669	-9.94903	1751.43	0	0
14	16.5029	-10.3829	1877.45	0	0
15	17.6389	-10.7704	1994.91	0	0
16	18.7749	-11.1131	2103.33	0	0
17	19.9109	-11.4125	2202.37	0	0
18	21.0469	-11.6698	2292.66	0	0
19	22.1829	-11.8859	2374.35	0	0
20	23.3189	-12.0617	2446.07	0	0
21	24.4549	-12.1978	2506.37	0	0
22	25.5909	-12.2946	2554.96	0	0
23	26.7269	-12.3526	2591.12	0	0
24	27.8629	-12.3719	2613.76	0	0
25	28.9989	-12.3526	2621.88	0	0
26	30.1349	-12.2946	2614.51	0	0
27	31.2709	-12.1978	2590.75	0	0
28	32.4069	-12.0617	2549.71	0	0
29	33.5429	-11.8859	2492.39	0	0
30	34.6789	-11.6698	2420.96	0	0
31	35.8149	-11.4125	2335.1	0	0
32	36.9509	-11.1131	2236.23	0	0
33	38.0869	-10.7704	2124.92	0	0
34	39.2229	-10.3829	2001.83	0	0
35	40.3589	-9.94903	1867.71	0	0
36	41.4949	-9.46674	1723.41	0	0
37	42.6309	-8.93372	1569.91	0	0
38	43.767	-8.34721	1408.36	0	0
39	44.903	-7.70394	1242.81	0	0
40	46.039	-7	1073.61	0	0
41	47.1519	-6.24702	902.777	0	0
42	48.2648	-5.42597	728.603	0	0
43	49.3777	-4.53029	555.924	0	0
44	50.4907	-3.55184	387.897	0	0
45	51.6036	-2.48031	228.509	0	0
46	52.7165	-1.30231	82.9145	0	0
47	53.8294	7.4607e-14	-42.0089	0	0
48	54.9213	1.42234	-137.841	0	0
49	56.0132	3.02202	-219.426	0	0
50	57.1051	4.85145	-276.061	0	0
51	58.1969	7	0	0	0

Group 1 - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.19635

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	19.4429	0	0	0	0
2	19.7266	-0.00142553	11.8487	0	0
3	20.0104	0	23.6974	0	0
4	20.3922	0.00641932	24.0174	0	0
5	20.7741	0.0180063	24.8934	0	0
6	21.156	0.0347674	26.2579	0	0
7	21.5378	0.0567119	28.0462	0	0
8	21.9197	0.0838517	30.1963	0	0
9	22.3015	0.116202	32.6489	0	0
10	22.6834	0.153781	35.3472	0	0
11	23.0652	0.196609	38.2305	0	0
12	23.4471	0.244711	40.9937	0	0
13	23.829	0.298114	43.4955	0	0
14	24.2108	0.356848	45.7412	0	0
15	24.5927	0.420947	47.7372	0	0
16	24.9745	0.490448	49.4916	0	0
17	25.3564	0.565392	51.1282	0	0
18	25.7383	0.645823	52.7686	0	0
19	26.1201	0.73179	54.3743	0	0
20	26.502	0.823345	55.9077	0	0
21	26.8838	0.920542	57.3333	0	0
22	27.2657	1.02344	58.6171	0	0
23	27.6475	1.13212	59.727	0	0
24	28.0294	1.24663	60.6324	0	0
25	28.4113	1.36705	61.3046	0	0
26	28.7931	1.49347	61.7163	0	0
27	29.175	1.62596	61.8419	0	0
28	29.5568	1.76463	61.6574	0	0
29	29.9387	1.90956	61.1407	0	0
30	30.3205	2.06086	60.2709	0	0
31	30.7024	2.21865	59.029	0	0
32	31.0843	2.38304	57.3976	0	0
33	31.4661	2.55415	55.3609	0	0
34	31.848	2.73213	52.9051	0	0
35	32.2298	2.91712	50.0177	0	0
36	32.6117	3.10927	46.6977	0	0
37	32.9936	3.30875	43.1088	0	0
38	33.3754	3.51573	39.3498	0	0
39	33.7573	3.73042	35.468	0	0
40	34.1391	3.953	31.5134	0	0
41	34.521	4.1837	27.4504	0	0
42	34.9028	4.42275	23.2796	0	0
43	35.2847	4.67042	19.1695	0	0
44	35.6666	4.92697	15.1829	0	0
45	36.0484	5.1927	11.3868	0	0
46	36.4303	5.46793	7.85232	0	0
47	36.8121	5.75302	4.65541	0	0
48	37.194	6.04833	1.87723	0	0
49	37.5759	6.35429	-0.395362	0	0
50	37.9577	6.67135	-2.0692	0	0
51	38.3396	7	0	0	0

Group 2 - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.19609

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	0.968933	-3.57373e-16	0	0	0
2	1.8678	-1.03963	93.0636	0	0
3	2.76666	-2	198.021	0	0
4	3.9311	-3.14113	346.56	0	0
5	5.09554	-4.1801	504.459	0	0
6	6.25998	-5.12875	667.662	0	0
7	7.42442	-5.99632	833.013	0	0
8	8.58886	-6.7902	998.005	0	0
9	9.7533	-7.51639	1160.63	0	0
10	10.9177	-8.1798	1319.24	0	0
11	12.0822	-8.78452	1472.5	0	0
12	13.2466	-9.33396	1619.32	0	0
13	14.4111	-9.83103	1758.77	0	0
14	15.5755	-10.2781	1890.12	0	0
15	16.7399	-10.6774	2012.75	0	0
16	17.9044	-11.0304	2126.17	0	0
17	19.0688	-11.3389	2229.99	0	0
18	20.2333	-11.6039	2324.72	0	0
19	21.3977	-11.8264	2410.72	0	0
20	22.5622	-12.0075	2486.58	0	0
21	23.7266	-12.1476	2550.89	0	0
22	24.891	-12.2474	2602.83	0	0
23	26.0555	-12.3071	2642.09	0	0
24	27.2199	-12.3269	2667.4	0	0
25	28.3844	-12.3071	2677.7	0	0
26	29.5488	-12.2474	2671.98	0	0
27	30.7132	-12.1476	2649.28	0	0
28	31.8777	-12.0075	2608.67	0	0
29	33.0421	-11.8264	2549.75	0	0
30	34.2066	-11.6039	2475.75	0	0
31	35.371	-11.3389	2386.4	0	0
32	36.5354	-11.0304	2283.18	0	0
33	37.6999	-10.6774	2166.89	0	0
34	38.8643	-10.2781	2038.24	0	0
35	40.0288	-9.83103	1898.02	0	0
36	41.1932	-9.33396	1747.13	0	0
37	42.3576	-8.78452	1586.64	0	0
38	43.5221	-8.1798	1417.75	0	0
39	44.6865	-7.51639	1243.9	0	0
40	45.851	-6.7902	1067.11	0	0
41	47.0154	-5.99632	885.735	0	0
42	48.1799	-5.12875	700.402	0	0
43	49.3443	-4.1801	517.125	0	0
44	50.5087	-3.14113	339.574	0	0
45	51.6732	-2	172.426	0	0
46	52.572	-1.03963	54.3202	0	0
47	53.4709	1.77636e-14	-50.3271	0	0
48	54.6529	1.50832	-141.343	0	0
49	55.8348	3.21329	-219.974	0	0
50	57.0168	5.17534	-276.032	0	0
51	58.1987	7.5	0	0	0

Group 2 - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.27043

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	0.657654	-2.42563e-16	0	0	0
2	1.55393	-1.0394	87.1429	0	0
3	2.4502	-2	184.654	0	0
4	3.62242	-3.15245	323.235	0	0
5	4.79465	-4.20144	469.971	0	0
6	5.96687	-5.15903	621.187	0	0
7	7.13909	-6.03462	774.025	0	0
8	8.31131	-6.83572	926.225	0	0
9	9.48353	-7.56842	1075.97	0	0
10	10.6557	-8.23771	1221.79	0	0
11	11.828	-8.84773	1362.49	0	0
12	13.0002	-9.40196	1497.07	0	0
13	14.1724	-9.90331	1624.73	0	0
14	15.3446	-10.3542	1744.8	0	0
15	16.5168	-10.7569	1856.74	0	0
16	17.6891	-11.113	1960.12	0	0
17	18.8613	-11.424	2054.58	0	0
18	20.0335	-11.6912	2140.32	0	0
19	21.2057	-11.9157	2217.82	0	0
20	22.378	-12.0982	2285.89	0	0
21	23.5502	-12.2395	2343.31	0	0
22	24.7224	-12.3401	2389.38	0	0
23	25.8946	-12.4003	2423.87	0	0
24	27.0668	-12.4203	2445.52	0	0
25	28.2391	-12.4003	2453.34	0	0
26	29.4113	-12.3401	2446.43	0	0
27	30.5835	-12.2395	2423.92	0	0
28	31.7557	-12.0982	2384.98	0	0
29	32.9279	-11.9157	2329.09	0	0
30	34.1002	-11.6912	2259.22	0	0
31	35.2724	-11.424	2175.44	0	0
32	36.4446	-11.113	2078.91	0	0
33	37.6168	-10.7569	1970.55	0	0
34	38.789	-10.3542	1851.02	0	0
35	39.9613	-9.90331	1721.05	0	0
36	41.1335	-9.40196	1581.52	0	0
37	42.3057	-8.84773	1433.39	0	0
38	43.4779	-8.23771	1277.8	0	0
39	44.6501	-7.56842	1117.98	0	0
40	45.8224	-6.83572	956.108	0	0
41	46.9946	-6.03462	790.33	0	0
42	48.1668	-5.15903	620.908	0	0
43	49.339	-4.20144	453.78	0	0
44	50.5112	-3.15245	292.371	0	0
45	51.6835	-2	141.045	0	0
46	52.5797	-1.0394	35.6416	0	0
47	53.476	2.13163e-14	-57.2459	0	0
48	54.6567	1.50996	-145.498	0	0
49	55.8374	3.21587	-221.425	0	0
50	57.018	5.17773	-275.222	0	0
51	58.1987	7.5	0	0	0

Discharge Sections

Entity Information

Group 1

Shared Entities

Type	Coordinates (x,y)
External Boundary	0, 0 -1.42e-14, -30 91.7, -30 91.7, 0 70.7, 0 67.7, 2 65.7, 2 58.2, 7 56.35, 7 46.6, 7 44.1, 7 34.35, 7 32.5, 7 25, 2 23, 2 20, 0
Material Boundary	20, 0 70.7, 0

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario	Scenario 2
Water Table	0, -7 91.7, -7	Assigned to: Rilevato Limo	Assigned to: Rilevato Limo
Distributed Load	44.1, 7 34.35, 7	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No
Distributed Load	56.35, 7 46.6, 7	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No

Group 2

Shared Entities

Type	Coordinates (x,y)
External Boundary	0, 0 -1.42e-14, -30 91.7, -30 91.7, 0 69.45, -7.1e-15 58.2, 7.5 56.35, 7.5 46.6, 7.5 44.1, 7.5 34.35, 7.5 32.5, 7.5 25, 2.5 23, 2.5 19.25, -7.1e-15
Material Boundary	19.25, -7.1e-15 69.45, -7.1e-15

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario	Scenario 2
Water Table	0, -2 91.7, -2	Assigned to: Rilevato Limo con sabbia	Assigned to: Rilevato Limo con sabbia
Distributed Load	44.1, 7.5 34.35, 7.5	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No
Distributed Load	56.35, 7.5 46.6, 7.5	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No

rocscience

Strada di collegamento SR73 – Raccordo A1 Arezzo – Battifolle
Stabilità globale - SLU
Sezione Tipo C H=8.5 m e Sezione Tipo D H=10.0 m
Date Created: 03/05/2022, 12:26:01
Software Version: 9.02

Table of Contents

Slide Analysis Information

2022-05-03 Strada collegamento

Project Summary

File Name:	2022-05-03 Strada collegamento.slmd
Slide Modeler Version:	9.02
Project Title:	SLIDE - An Interactive Slope Stability Program
Date Created:	03/05/2022, 12:26:01

Currently Open Scenarios

Group Name	Scenario Name	Global Minimum	Compute Time
C1 H=8.5 m	Master Scenario	Bishop Simplified: 1.139690	00h:00m:01.182s
C4 H=10.0 m	Master Scenario	Bishop Simplified: 1.102620	00h:00m:01.2s

General Settings

Units of Measurement:	Metric Units
Time Units:	days
Permeability Units:	meters/second
Data Output:	Standard
Failure Direction:	Right to Left

Design Standard

All Open Scenarios

Selected Type:	Eurocode 7 (User Defined)
Name:	A2+M2+R2

Type	Partial Factor
Permanent Actions: Unfavourable	1
Permanent Actions: Favourable	1
Variable Actions: Unfavourable	1.3
Variable Actions: Favourable	0
Effective cohesion	1.25
Coefficient of shearing resistance	1.25
Undrained strength	1.4
Weight density	1
Shear strength (other models)	1.25
Earth resistance	1.1
Tensile and plate strength	1
Shear strength	1
Compressive strength	1
Bond strength	1
Seismic Coefficient	1

Analysis Options

All Open Scenarios

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

All Open Scenarios

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [kN/m3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [kPa]:	0
Advanced Groundwater Method:	None

Random Numbers

All Open Scenarios

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

All Open Scenarios

Surface Type:	Circular
Search Method:	Auto Refine Search
Divisions along slope:	20
Circles per division:	10
Number of iterations:	10
Divisions to use in next iteration:	50%
Composite Surfaces:	Disabled
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

All Open Scenarios

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

All Open Scenarios

Distribution:	Constant
Magnitude [kPa]:	20
Orientation:	Normal to boundary
Load Action:	Live

Materials

Rilevato	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	19
Cohesion [kPa]	0
Friction Angle [deg]	35
Water Surface	Assigned per scenario
Hu Value	1
Limo 1	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	55
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Limo 2	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	81
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Argilla 1	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19
Cohesion [kPa]	66
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Argilla 2	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19
Cohesion [kPa]	77
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Argilla 3	

Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19
Cohesion [kPa]	110
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Sabbia	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	20
Cohesion [kPa]	0
Friction Angle [deg]	32
Water Surface	Assigned per scenario
Hu Value	1
Ghiaia	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	20
Cohesion [kPa]	1
Friction Angle [deg]	35
Water Surface	Assigned per scenario
Hu Value	1
Substrato	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	22
Cohesion [kPa]	120
Friction Angle [deg]	36
Water Surface	Assigned per scenario
Hu Value	1

Materials In Use

Material	C1 H=8.5 m	C4 H=10.0 m
Rilevato	✓	✓
Limo 1	✓	✓
Limo 2	✓	✗
Argilla 1	✓	✗
Argilla 2	✓	✗
Argilla 3	✓	✗
Sabbia	✓	✗
Ghiaia	✓	✓
Substrato	✗	✓

Global Minimums

C1 H=8.5 m

Method: bishop simplified

FS	1.139690
Center:	42.478, 22.832
Radius:	22.833
Left Slip Surface Endpoint:	42.193, -0.000
Right Slip Surface Endpoint:	60.254, 8.500
Resisting Moment:	8575.07 kN-m
Driving Moment:	7524.04 kN-m
Total Slice Area:	38.7072 m2
Surface Horizontal Width:	18.0602 m
Surface Average Height:	2.14323 m

C4 H=10.0 m

Method: bishop simplified

FS	1.102620
Center:	49.885, 15.495
Radius:	21.433
Left Slip Surface Endpoint:	35.076, -0.000
Right Slip Surface Endpoint:	70.602, 10.000
Resisting Moment:	37786 kN-m
Driving Moment:	34269.3 kN-m
Total Slice Area:	313.43 m2
Surface Horizontal Width:	35.5251 m
Surface Average Height:	8.82276 m

Global Minimum Support Data

All Open Scenarios

No Supports Present

Valid and Invalid Surfaces

C1 H=8.5 m

Method: bishop simplified

Number of Valid Surfaces:	6442
Number of Invalid Surfaces:	0

C4 H=10.0 m

Method: bishop simplified

Number of Valid Surfaces:	4954
Number of Invalid Surfaces:	0

Slice Data

C1 H=8.5 m

Global Minimum Query (bishop simplified) - Safety Factor: 1.13969

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.284763	0.00493031	-0.357288	Limo 1	39.287	0	31.3378	35.7154	0.232168	0	0.232168	0.0367475	0.0367475
2	0.284763	0.006003	0.357288	Limo 1	39.287	0	31.3378	35.7154	-0.193774	0	-0.193774	0.00164682	0.00164682
3	0.36439	0.875207	1.17186	Rilevato	0	29.2561	1.06253	1.21095	2.37794	0	2.37794	2.39968	2.39968
4	0.36439	2.48533	2.08663	Rilevato	0	29.2561	2.99398	3.41221	6.70057	0	6.70057	6.80965	6.80965
5	0.36439	4.0551	3.00194	Rilevato	0	29.2561	4.84758	5.52474	10.8489	0	10.8489	11.1032	11.1032
6	0.36439	5.58444	3.91801	Rilevato	0	29.2561	6.62489	7.55032	14.8266	0	14.8266	15.2803	15.2803
7	0.36439	7.07322	4.83509	Rilevato	0	29.2561	8.32733	9.49058	18.6367	0	18.6367	19.3411	19.3411
8	0.36439	8.52131	5.75341	Rilevato	0	29.2561	9.95622	11.347	22.2822	0	22.2822	23.2854	23.2854
9	0.36439	9.92851	6.67322	Rilevato	0	29.2561	11.5129	13.1211	25.766	0	25.766	27.113	27.113
10	0.36439	11.2946	7.59476	Rilevato	0	29.2561	12.9984	14.8141	29.0905	0	29.0905	30.8236	30.8236
11	0.36439	12.6194	8.51828	Rilevato	0	29.2561	14.4137	16.4271	32.258	0	32.258	34.4168	34.4168
12	0.36439	13.9025	9.44404	Rilevato	0	29.2561	15.7598	17.9613	35.2708	0	35.2708	37.8922	37.8922
13	0.36439	15.1437	10.3723	Rilevato	0	29.2561	17.0376	19.4176	38.1305	0	38.1305	41.249	41.249
14	0.36439	16.3426	11.3033	Rilevato	0	29.2561	18.2479	20.7969	40.839	0	40.839	44.4864	44.4864
15	0.36439	17.4987	12.2373	Rilevato	0	29.2561	19.3912	22.1	43.3978	0	43.3978	47.6036	47.6036
16	0.36439	18.6117	13.1747	Rilevato	0	29.2561	20.4685	23.3277	45.8085	0	45.8085	50.5999	50.5999
17	0.36439	19.3494	14.1157	Rilevato	0	29.2561	21.1178	24.0678	47.262	0	47.262	52.5726	52.5726
18	0.36439	18.8091	15.0606	Rilevato	0	29.2561	20.3713	23.217	45.5915	0	45.5915	51.073	51.073
19	0.36439	18.1077	16.0096	Rilevato	0	29.2561	19.4611	22.1796	43.5539	0	43.5539	49.1379	49.1379
20	0.36439	17.361	16.9633	Rilevato	0	29.2561	18.5142	21.1005	41.435	0	41.435	47.0824	47.0824
21	0.36439	16.5683	17.9217	Rilevato	0	29.2561	17.5312	19.9801	39.2349	0	39.2349	44.9047	44.9047
22	0.36439	15.7452	18.8854	Rilevato	0	29.2561	16.5293	18.8383	36.9929	0	36.9929	42.6475	42.6475
23	0.36439	15.9173	19.8547	Rilevato	0	29.2561	16.5775	18.8932	37.1006	0	37.1006	43.0868	43.0868
24	0.36439	16.6638	20.83	Rilevato	0	29.2561	17.2158	19.6207	38.5293	0	38.5293	45.0793	45.0793
25	0.36439	17.3609	21.8116	Rilevato	0	29.2561	17.7907	20.2759	39.8157	0	39.8157	46.9357	46.9357
26	0.36439	18.0077	22.7999	Rilevato	0	29.2561	18.3021	20.8587	40.9603	0	40.9603	48.6538	48.6538
27	0.36439	18.6031	23.7956	Rilevato	0	29.2561	18.7499	21.3691	41.9627	0	41.9627	50.2306	50.2306
28	0.36439	19.1459	24.7988	Rilevato	0	29.2561	19.1342	21.807	42.8226	0	42.8226	51.6633	51.6633
29	0.36439	19.6349	25.8103	Rilevato	0	29.2561	19.4546	22.1722	43.5396	0	43.5396	52.9486	52.9486
30	0.36439	20.0687	26.8305	Rilevato	0	29.2561	19.711	22.4644	44.1135	0	44.1135	54.0834	54.0834
31	0.36439	20.4458	27.86	Rilevato	0	29.2561	19.903	22.6833	44.5433	0	44.5433	55.0636	55.0636
32	0.36439	20.7646	28.8993	Rilevato	0	29.2561	20.0303	22.8283	44.828	0	44.828	55.885	55.885
33	0.36439	21.0234	29.9492	Rilevato	0	29.2561	20.0924	22.8991	44.967	0	44.967	56.5436	56.5436
34	0.36439	21.2203	31.0103	Rilevato	0	29.2561	20.0887	22.8949	44.9588	0	44.9588	57.0343	57.0343
35	0.36439	21.3531	32.0833	Rilevato	0	29.2561	20.0187	22.8151	44.802	0	44.802	57.3516	57.3516
36	0.36439	21.4198	33.1691	Rilevato	0	29.2561	19.8816	22.6589	44.4954	0	44.4954	57.4903	57.4903
37	0.36439	21.4177	34.2685	Rilevato	0	29.2561	19.6768	22.4254	44.0369	0	44.0369	57.4436	57.4436
38	0.36439	21.3443	35.3825	Rilevato	0	29.2561	19.4033	22.1137	43.4247	0	43.4247	57.2049	57.2049
39	0.36439	21.1965	36.5121	Rilevato	0	29.2561	19.0601	21.7226	42.6567	0	42.6567	56.7667	56.7667
40	0.36439	20.9711	37.6584	Rilevato	0	29.2561	18.6462	21.2509	41.7305	0	41.7305	56.1203	56.1203
41	0.36439	20.6645	38.8228	Rilevato	0	29.2561	18.1605	20.6973	40.6433	0	40.6433	55.2566	55.2566
42	0.36439	20.2727	40.0065	Rilevato	0	29.2561	17.6015	20.0603	39.3925	0	39.3925	54.1653	54.1653
43	0.36439	19.5301	41.2111	Rilevato	0	29.2561	16.7444	19.0834	37.4742	0	37.4742	52.1385	52.1385
44	0.36439	17.437	42.4383	Rilevato	0	29.2561	14.7543	16.8153	33.0203	0	33.0203	46.5109	46.5109
45	0.36439	15.0786	43.6901	Rilevato	0	29.2561	12.5841	14.342	28.1635	0	28.1635	40.1849	40.1849
46	0.36439	12.6136	44.9686	Rilevato	0	29.2561	10.3755	11.8249	23.2206	0	23.2206	33.5848	33.5848
47	0.36439	10.0346	46.2762	Rilevato	0	29.2561	8.1292	9.26477	18.1932	0	18.1932	26.6929	26.6929
48	0.36439	7.33355	47.6159	Rilevato	0	29.2561	9.47187	10.795	21.1982	0	21.1982	31.577	31.577
49	0.36439	4.50073	48.9909	Rilevato	0	29.2561	10.9501	12.4797	24.5065	0	24.5065	37.0991	37.0991
50	0.36439	1.52505	50.405	Rilevato	0	29.2561	8.46176	9.64378	18.9376	0	18.9376	29.1679	29.1679

C4 H=10.0 m

Global Minimum Query (bishop simplified) - Safety Factor: 1.10262

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.737739	4.83987	-42.3667	Limo 1	39.7663	0	32.7866	36.1512	39.4523	0	39.4523	9.54889	9.54889
2	0.737739	14.093	-39.7493	Limo 1	40.6852	0	33.5442	36.9865	49.7888	0	49.7888	21.8911	21.8911
3	0.737739	22.5383	-37.2282	Limo 1	41.5238	0	34.2356	37.7489	59.163	0	59.163	33.1501	33.1501
4	0.737739	30.2569	-34.7889	Limo 1	42.2903	0	34.8676	38.4457	67.6575	0	67.6575	43.4338	43.4338
5	0.737739	37.3137	-32.4199	Limo 1	42.9911	0	35.4454	39.0828	75.3399	0	75.3399	52.8282	52.8282
6	0.737739	43.7614	-30.1118	Limo 1	43.6314	0	35.9733	39.6649	82.2662	0	82.2662	61.4033	61.4033
7	0.737739	49.6435	-27.8564	Limo 1	44.2155	0	36.4549	40.1959	88.4832	0	88.4832	69.2169	69.2169
8	0.737739	56.4447	-25.6471	Limo 1	44.747	0	36.8931	40.6791	95.9941	0	95.9941	78.2806	78.2806
9	0.685104	62.5564	-23.5542	Limo 1	45.2133	0	37.2776	41.103	109.184	0	109.184	92.9335	92.9335
10	0.685104	72.3059	-21.5705	Limo 1	45.6201	0	37.613	41.4728	121.896	0	121.896	107.026	107.026
11	0.685104	81.6912	-19.6136	Limo 1	45.9879	0	37.9162	41.8072	134.101	0	134.101	120.589	120.589
12	0.685104	90.7261	-17.6803	Limo 1	46.3183	0	38.1887	42.1076	145.816	0	145.816	133.643	133.643
13	0.685104	99.4223	-15.7676	Limo 1	46.6125	0	38.4312	42.375	157.056	0	157.056	146.205	146.205
14	0.685104	107.79	-13.8727	Limo 1	46.8715	0	38.6448	42.6105	167.832	0	167.832	158.288	158.288
15	0.685104	115.838	-11.9933	Limo 1	47.0963	0	38.8301	42.8148	178.153	0	178.153	169.904	169.904
16	0.685104	123.573	-10.1268	Limo 1	47.2877	0	38.9879	42.9888	188.03	0	188.03	181.067	181.067
17	0.685104	131.001	-8.27121	Limo 1	47.4462	0	39.1186	43.1329	197.468	0	197.468	191.781	191.781
18	0.685104	138.126	-6.42429	Limo 1	47.5725	0	39.2227	43.2477	206.471	0	206.471	202.055	202.055
19	0.685104	143.278	-4.58405	Limo 1	47.6668	0	39.3005	43.3335	212.599	0	212.599	209.448	209.448
20	0.685104	144.049	-2.74855	Limo 1	47.7295	0	39.3522	43.3905	212.336	0	212.336	210.447	210.447
21	0.685104	144.342	-0.915871	Limo 1	47.7609	0	39.378	43.419	211.379	0	211.379	210.749	210.749
22	0.685104	146.398	0.915871	Limo 1	47.7609	0	39.378	43.419	212.994	0	212.994	213.624	213.624
23	0.685104	151.966	2.74855	Limo 1	47.7295	0	39.3522	43.3905	219.737	0	219.737	221.626	221.626
24	0.685104	157.325	4.58405	Limo 1	47.6668	0	39.3005	43.3335	226.17	0	226.17	229.321	229.321
25	0.685104	162.388	6.42429	Limo 1	47.5725	0	39.2227	43.2477	232.169	0	232.169	236.585	236.585
26	0.685104	167.152	8.27121	Limo 1	47.4462	0	39.1186	43.1329	237.726	0	237.726	243.413	243.413
27	0.685104	171.615	10.1268	Limo 1	47.2877	0	38.9879	42.9888	242.835	0	242.835	249.799	249.799
28	0.685104	175.771	11.9933	Limo 1	47.0963	0	38.8301	42.8148	247.487	0	247.487	255.736	255.736
29	0.685104	179.614	13.8727	Limo 1	46.8715	0	38.6448	42.6105	251.672	0	251.672	261.216	261.216
30	0.685104	183.137	15.7676	Limo 1	46.6125	0	38.4312	42.375	255.376	0	255.376	266.228	266.228
31	0.685104	186.331	17.6803	Limo 1	46.3183	0	38.1887	42.1076	258.586	0	258.586	270.759	270.759
32	0.685104	189.187	19.6136	Limo 1	45.9879	0	37.9162	41.8072	261.281	0	261.281	274.793	274.793
33	0.685104	189.367	21.5705	Limo 1	45.6201	0	37.613	41.4728	260.051	0	260.051	274.921	274.921
34	0.685104	185.603	23.5542	Limo 1	45.2133	0	37.2776	41.103	260.286	0	260.286	276.537	276.537
35	0.737739	195.166	25.6471	Limo 1	44.747	0	36.8931	40.6791	271.063	0	271.063	288.777	288.777
36	0.737739	189.814	27.8564	Limo 1	44.2155	0	36.4549	40.1959	262.099	0	262.099	281.366	281.366
37	0.737739	183.932	30.1118	Limo 1	43.6314	0	35.9733	39.6649	252.371	0	252.371	273.233	273.233
38	0.737739	177.484	32.4199	Limo 1	42.9911	0	35.4454	39.0828	241.817	0	241.817	264.328	264.328
39	0.737739	170.427	34.7889	Limo 1	42.2903	0	34.8676	38.4457	230.368	0	230.368	254.592	254.592
40	0.737739	162.709	37.2282	Limo 1	41.5238	0	34.2356	37.7489	217.938	0	217.938	243.951	243.951
41	0.737739	154.263	39.7493	Limo 1	40.6852	0	33.5442	36.9865	204.417	0	204.417	232.315	232.315
42	0.737739	145.01	42.3667	Limo 1	39.7663	0	32.7866	36.1512	189.669	0	189.669	219.572	219.572
43	0.738575	135.129	45.1001	Rilevato	0	29.2561	63.9213	70.4809	138.403	0	138.403	202.548	202.548
44	0.738575	124.179	47.9735	Rilevato	0	29.2561	57.3392	63.2234	124.151	0	124.151	187.774	187.774
45	0.738575	112.025	51.0177	Rilevato	0	29.2561	50.4137	55.5871	109.157	0	109.157	171.452	171.452
46	0.738575	98.4155	54.2782	Rilevato	0	29.2561	43.1022	47.5254	93.3259	0	93.3259	153.261	153.261
47	0.738575	82.9729	57.8233	Rilevato	0	29.2561	35.3502	38.9778	76.5412	0	76.5412	132.727	132.727
48	0.738575	65.0859	61.7645	Rilevato	0	29.2561	27.0849	29.8644	58.6448	0	58.6448	109.083	109.083
49	0.738575	43.625	66.3093	Rilevato	0	29.2561	18.2075	20.076	39.4232	0	39.4232	80.9195	80.9195
50	0.738575	15.9072	71.9556	Rilevato	0	29.2561	8.56877	9.4481	18.5533	0	18.5533	44.8559	44.8559

Interslice Data

C1 H=8.5 m

Global Minimum Query (bishop simplified) - Safety Factor: 1.13969

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	42.1935	-7.1e-15	0	0	0
2	42.4783	-0.00177576	8.91978	0	0
3	42.763	-3.55271e-15	17.8395	0	0
4	43.1274	0.00745383	18.2087	0	0
5	43.4918	0.0207303	19.2102	0	0
6	43.8562	0.0398395	20.7684	0	0
7	44.2206	0.0647962	22.8112	0	0
8	44.585	0.0956197	25.2696	0	0
9	44.9494	0.132334	28.0777	0	0
10	45.3137	0.174967	31.1723	0	0
11	45.6781	0.223553	34.493	0	0
12	46.0425	0.27813	37.982	0	0
13	46.4069	0.338743	41.584	0	0
14	46.7713	0.405439	45.246	0	0
15	47.1357	0.478273	48.9176	0	0
16	47.5001	0.557305	52.5501	0	0
17	47.8645	0.642603	56.0975	0	0
18	48.2289	0.734237	59.4579	0	0
19	48.5933	0.832288	62.4071	0	0
20	48.9576	0.936841	64.9412	0	0
21	49.322	1.04799	67.0787	0	0
22	49.6864	1.16584	68.8399	0	0
23	50.0508	1.29049	70.2486	0	0
24	50.4152	1.42208	71.4045	0	0
25	50.7796	1.56071	72.333	0	0
26	51.144	1.70654	73.0061	0	0
27	51.5084	1.85972	73.3978	0	0
28	51.8728	2.0204	73.484	0	0
29	52.2372	2.18876	73.2431	0	0
30	52.6015	2.365	72.6554	0	0
31	52.9659	2.54931	71.7037	0	0
32	53.3303	2.74192	70.3731	0	0
33	53.6947	2.94306	68.6511	0	0
34	54.0591	3.15302	66.5281	0	0
35	54.4235	3.37205	63.9969	0	0
36	54.7879	3.60049	61.0535	0	0
37	55.1523	3.83866	57.6971	0	0
38	55.5167	4.08693	53.9302	0	0
39	55.8811	4.34572	49.759	0	0
40	56.2454	4.61548	45.1941	0	0
41	56.6098	4.89669	40.2501	0	0
42	56.9742	5.1899	34.947	0	0
43	57.3386	5.49573	29.3102	0	0
44	57.703	5.81486	23.4497	0	0
45	58.0674	6.14804	17.8216	0	0
46	58.4318	6.49613	12.6012	0	0
47	58.7962	6.86012	7.92792	0	0
48	59.1606	7.24112	3.95707	0	0
49	59.525	7.6404	-1.05723	0	0
50	59.8893	8.05945	-7.33854	0	0
51	60.2537	8.5	0	0	0

C4 H=10.0 m

Global Minimum Query (bishop simplified) - Safety Factor: 1.10262

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	35.0764	-1.32492e-14	0	0	0
2	35.8141	-0.672862	50.7325	0	0
3	36.5519	-1.28642	106.026	0	0
4	37.2896	-1.84697	164.445	0	0
5	38.0273	-2.3595	224.844	0	0
6	38.7651	-2.82804	286.292	0	0
7	39.5028	-3.25589	348.027	0	0
8	40.2406	-3.64579	409.419	0	0
9	40.9783	-4	470.637	0	0
10	41.6634	-4.29866	528.784	0	0
11	42.3485	-4.56951	587.566	0	0
12	43.0336	-4.81365	646.28	0	0
13	43.7187	-5.03203	704.286	0	0
14	44.4038	-5.22548	760.995	0	0
15	45.0889	-5.39468	815.867	0	0
16	45.774	-5.54022	868.396	0	0
17	46.4591	-5.66258	918.114	0	0
18	47.1442	-5.76218	964.58	0	0
19	47.8293	-5.83932	1007.38	0	0
20	48.5144	-5.89425	1045.98	0	0
21	49.1995	-5.92714	1079.92	0	0
22	49.8846	-5.93809	1109.21	0	0
23	50.5698	-5.92714	1133.86	0	0
24	51.2549	-5.89425	1153.59	0	0
25	51.94	-5.83932	1168.09	0	0
26	52.6251	-5.76218	1177.05	0	0
27	53.3102	-5.66258	1180.17	0	0
28	53.9953	-5.54022	1177.16	0	0
29	54.6804	-5.39468	1167.75	0	0
30	55.3655	-5.22548	1151.64	0	0
31	56.0506	-5.03203	1128.56	0	0
32	56.7357	-4.81365	1098.25	0	0
33	57.4208	-4.56951	1060.44	0	0
34	58.1059	-4.29866	1015.78	0	0
35	58.791	-4	963.575	0	0
36	59.5287	-3.64579	894.777	0	0
37	60.2665	-3.25589	819.479	0	0
38	61.0042	-2.82804	738.038	0	0
39	61.742	-2.3595	650.884	0	0
40	62.4797	-1.84697	558.535	0	0
41	63.2174	-1.28642	461.626	0	0
42	63.9552	-0.672862	360.95	0	0
43	64.6929	4.9738e-14	257.516	0	0
44	65.4315	0.74116	202.145	0	0
45	66.1701	1.56067	142.748	0	0
46	66.9086	2.47331	80.3597	0	0
47	67.6472	3.50032	16.3455	0	0
48	68.3858	4.67422	-47.3984	0	0
49	69.1244	6.04961	-108.055	0	0
50	69.8629	7.73287	-160.968	0	0
51	70.6015	10	0	0	0

Discharge Sections

Entity Information

- **C1 H=8.5 m**

  Shared Entities

Type	Coordinates (x,y)
External Boundary	141.7, -7.1e-15 86.45, 7.11085e-15 81.2, 3.5 79.2, 3.5 71.7, 8.5 69.85, 8.5 59.35, 8.5 57.5, 8.5 50, 3.5 48, 3.5 42.75, -7.1e-15 0, -7.1e-15 0, -3 0, -6.5 0, -8.5 0, -13 0, -20.5 0, -25 0, -28 -1.42e-14, -30 141.7, -30 141.7, -28 141.7, -25 141.7, -20.5 141.7, -13 141.7, -8.5 141.7, -6.5 141.7, -3
Material Boundary	42.75, -7.1e-15 86.45, 7.11085e-15
Material Boundary	0, -3 141.7, -3
Material Boundary	0, -6.5 141.7, -6.5
Material Boundary	0, -8.5 141.7, -8.5
Material Boundary	0, -13 141.7, -13
Material Boundary	0, -20.5 141.7, -20.5
Material Boundary	0, -25 141.7, -25
Material Boundary	0, -28 141.7, -28

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	0, -2.5 141.7, -2.5	Assigned to: Rilevato Limo 1 Limo 2 Argilla 1 Argilla 2 Argilla 3 ... and 2 more
Distributed Load	69.85, 8.5 59.35, 8.5	Constant DistributionOrientation: Normal to boundaryMagnitude: 20 kN/m2Creates Excess Pore Pressure: No

C4 H=10.0 m

Shared Entities

Type	Coordinates (x,y)
External Boundary	0, -7.1e-15 0, -15 0, -18.2 -1.42e-14, -30 130.2, -30 130.2, -18.2 130.2, -15 130.2, -7.1e-15 88.7, -7.1e-15 81.2, 5 79.2, 5 71.7, 10 70.6, 10 58.6, 10 57.5, 10 50, 5 48, 5 40.5, -1.42e-14
Material Boundary	40.5, -1.42e-14 88.7, -7.1e-15
Material Boundary	0, -18.2 130.2, -18.2
Material Boundary	0, -15 130.2, -15

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	0, -4 130.2, -4	Assigned to: Rilevato Limo 1 Ghiaia Substrato
Distributed Load	70.6, 10 58.6, 10	Constant DistributionOrientation: Normal to boundaryMagnitude: 20 kN/m2Creates Excess Pore Pressure: No

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Strada di collegamento SR73 – Raccordo A1 Arezzo – Battifolle
Stabilità globale - SLV
Sezione Tipo A H=7.0 m e Sezione Tipo B H=7.5 m
Date Created: 03/05/2022, 12:26:01
Software Version: 9.02

Table of Contents

Slide Analysis Information

2022-05-03 Strada collegamento - sisma

Project Summary

File Name:	2022-05-03 Strada collegamento - sisma.slmd
Slide Modeler Version:	9.02
Project Title:	SLIDE - An Interactive Slope Stability Program
Date Created:	03/05/2022, 12:26:01

Currently Open Scenarios

Group Name	Scenario Name	Global Minimum	Compute Time
C1 H=8.5 m	Master Scenario	Bishop Simplified: 1.052530	00h:00m:01.209s
	Scenario 2	Bishop Simplified: 1.037250	00h:00m:01.192s
C4 H=10.0 m	Master Scenario	Bishop Simplified: 1.087590	00h:00m:00.942s
	Scenario 2	Bishop Simplified: 1.166120	00h:00m:01.37s

General Settings

Units of Measurement:	Metric Units
Time Units:	days
Permeability Units:	meters/second
Data Output:	Standard
Failure Direction:	Right to Left

Design Standard

All Open Scenarios

Selected Type:	Eurocode 7 (User Defined)
Name:	SISMA

Type	Partial Factor
Permanent Actions: Unfavourable	1
Permanent Actions: Favourable	1
Variable Actions: Unfavourable	1
Variable Actions: Favourable	1
Effective cohesion	1
Coefficient of shearing resistance	1
Undrained strength	1
Weight density	1
Shear strength (other models)	1
Earth resistance	1.2
Tensile and plate strength	1
Shear strength	1
Compressive strength	1
Bond strength	1
Seismic Coefficient	1

Analysis Options

All Open Scenarios

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

All Open Scenarios

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [kN/m3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [kPa]:	0
Advanced Groundwater Method:	None

Random Numbers

All Open Scenarios

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

All Open Scenarios

Surface Type:	Circular
Search Method:	Auto Refine Search
Divisions along slope:	20
Circles per division:	10
Number of iterations:	10
Divisions to use in next iteration:	50%
Composite Surfaces:	Disabled
Minimum Elevation:	Not Defined
Minimum Depth [m]:	2
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

C1 H=8.5 m - Master Scenario

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.105
Seismic Load Coefficient (Vertical):	0.052

C1 H=8.5 m - Scenario 2

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.105
Seismic Load Coefficient (Vertical):	-0.052

C4 H=10.0 m - Master Scenario

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.11
Seismic Load Coefficient (Vertical):	0.055

C4 H=10.0 m - Scenario 2

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.11
Seismic Load Coefficient (Vertical):	-0.055

Loading

All Open Scenarios

Distribution:	Constant
Magnitude [kPa]:	6
Orientation:	Normal to boundary
Load Action:	Live

Materials

Rilevato	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	19
Cohesion [kPa]	0
Friction Angle [deg]	35
Water Surface	Assigned per scenario
Hu Value	1
Limo 1	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	55
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Limo 2	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19.5
Cohesion [kPa]	81
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Argilla 1	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19
Cohesion [kPa]	66
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Argilla 2	
Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19
Cohesion [kPa]	77
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Argilla 3	

Color	
Strength Type	Undrained
Unit Weight [kN/m3]	19
Cohesion [kPa]	110
Cohesion Type	F(Depth from Top of Layer)
Cohesion Change [kPa/m]	2
Water Surface	Assigned per scenario
Hu Value	0
Sabbia	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	20
Cohesion [kPa]	0
Friction Angle [deg]	32
Water Surface	Assigned per scenario
Hu Value	1
Ghiaia	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	20
Cohesion [kPa]	1
Friction Angle [deg]	35
Water Surface	Assigned per scenario
Hu Value	1
Substrato	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [kN/m3]	22
Cohesion [kPa]	120
Friction Angle [deg]	36
Water Surface	Assigned per scenario
Hu Value	1

Materials In Use

Material	C1 H=8.5 m	Scenario 2	C4 H=10.0 m	Scenario 2
Rilevato	✓	✓	✓	✓
Limo 1	✓	✓	✓	✓
Limo 2	✓	✓	✗	✗
Argilla 1	✓	✓	✗	✗
Argilla 2	✓	✓	✗	✗
Argilla 3	✓	✓	✗	✗
Sabbia	✓	✓	✗	✗
Ghiaia	✓	✓	✓	✓
Substrato	✗	✗	✓	✓

Global Minimums

C1 H=8.5 m - Master Scenario

Method: bishop simplified

FS	1.052530
Center:	42.472, 22.828
Radius:	22.830
Left Slip Surface Endpoint:	42.191, -0.000
Right Slip Surface Endpoint:	60.246, 8.500
Resisting Moment:	9497.99 kN-m
Driving Moment:	9023.99 kN-m
Total Slice Area:	38.6442 m2
Surface Horizontal Width:	18.0544 m
Surface Average Height:	2.14043 m

C1 H=8.5 m - Scenario 2

Method: bishop simplified

FS	1.037250
Center:	42.474, 22.827
Radius:	22.829
Left Slip Surface Endpoint:	42.194, -0.000
Right Slip Surface Endpoint:	60.247, 8.500
Resisting Moment:	8595.97 kN-m
Driving Moment:	8287.3 kN-m
Total Slice Area:	38.6585 m2
Surface Horizontal Width:	18.0531 m
Surface Average Height:	2.14138 m

C4 H=10.0 m - Master Scenario

Method: bishop simplified

FS	1.087590
Center:	49.776, 15.897
Radius:	22.697
Left Slip Surface Endpoint:	33.576, -0.000
Right Slip Surface Endpoint:	71.693, 10.000
Resisting Moment:	52266.9 kN-m
Driving Moment:	48057.7 kN-m
Total Slice Area:	355.77 m2
Surface Horizontal Width:	38.1168 m
Surface Average Height:	9.33368 m

C4 H=10.0 m - Scenario 2

Method: bishop simplified

FS	1.166120
Center:	49.975, 15.831
Radius:	22.488
Left Slip Surface Endpoint:	34.003, -0.000
Right Slip Surface Endpoint:	71.693, 10.000
Resisting Moment:	50435.1 kN-m
Driving Moment:	43250.3 kN-m
Total Slice Area:	350.349 m2
Surface Horizontal Width:	37.6897 m
Surface Average Height:	9.29563 m

Global Minimum Support Data

All Open Scenarios

No Supports Present

Valid and Invalid Surfaces

C1 H=8.5 m - Master Scenario

Method: bishop simplified

Number of Valid Surfaces:	6310
Number of Invalid Surfaces:	0

C1 H=8.5 m - Scenario 2

Method: bishop simplified

Number of Valid Surfaces:	5970
Number of Invalid Surfaces:	0

C4 H=10.0 m - Master Scenario

Method: bishop simplified

Number of Valid Surfaces:	4552
Number of Invalid Surfaces:	0

C4 H=10.0 m - Scenario 2

Method: bishop simplified

Number of Valid Surfaces:	4666
Number of Invalid Surfaces:	0

Slice Data

C1 H=8.5 m - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.05253

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.280755	0.00472578	-0.352315	Limo 1	55.0017	0	43.5472	45.8347	0.339011	0	0.339011	0.071233	0.071233
2	0.280755	0.00477639	0.352315	Limo 1	55.0017	0	43.5472	45.8347	-0.303406	0	-0.303406	-0.0356283	-0.0356283
3	0.364436	0.828609	1.16204	Rilevato	0	35	1.30838	1.37711	2.36006	0	2.36006	2.3866	2.3866
4	0.364436	2.43956	2.07708	Rilevato	0	35	3.8121	4.01235	6.87628	0	6.87628	7.01453	7.01453
5	0.364436	4.01015	2.99264	Rilevato	0	35	6.20182	6.5276	11.1869	0	11.1869	11.5111	11.5111
6	0.364436	5.54027	3.90897	Rilevato	0	35	8.48071	8.9262	15.2975	0	15.2975	15.877	15.877
7	0.364436	7.02983	4.8263	Rilevato	0	35	10.6517	11.2112	19.2135	0	19.2135	20.1129	20.1129
8	0.364436	8.47867	5.74487	Rilevato	0	35	12.7175	13.3855	22.9398	0	22.9398	24.2192	24.2192
9	0.364436	9.8866	6.66493	Rilevato	0	35	14.6805	15.4517	26.4808	0	26.4808	28.1963	28.1963
10	0.364436	11.2534	7.58672	Rilevato	0	35	16.5433	17.4123	29.8408	0	29.8408	32.0442	32.0442
11	0.364436	12.5789	8.51048	Rilevato	0	35	18.3078	19.2695	33.0236	0	33.0236	35.7632	35.7632
12	0.364436	13.8627	9.43649	Rilevato	0	35	19.9762	21.0255	36.0328	0	36.0328	39.3529	39.3529
13	0.364436	15.1045	10.365	Rilevato	0	35	21.5501	22.6821	38.8721	0	38.8721	42.8137	42.8137
14	0.364436	16.304	11.2962	Rilevato	0	35	23.0313	24.2411	41.5439	0	41.5439	46.1445	46.1445
15	0.364436	17.4608	12.2305	Rilevato	0	35	24.4213	25.7042	44.0513	0	44.0513	49.345	49.345
16	0.364436	18.5744	13.1681	Rilevato	0	35	25.7217	27.0729	46.3969	0	46.3969	52.4148	52.4148
17	0.364436	19.3396	14.1094	Rilevato	0	35	26.5159	27.9088	47.8295	0	47.8295	54.4944	54.4944
18	0.364436	18.8164	15.0545	Rilevato	0	35	25.5422	26.8839	46.073	0	46.073	52.943	52.943
19	0.364436	18.1151	16.0038	Rilevato	0	35	24.3451	25.6239	43.9137	0	43.9137	50.8963	50.8963
20	0.364436	17.3685	16.9577	Rilevato	0	35	23.1079	24.3218	41.6822	0	41.6822	48.7284	48.7284
21	0.364436	16.5758	17.9164	Rilevato	0	35	21.8314	22.9782	39.3794	0	39.3794	46.4377	46.4377
22	0.364436	15.7473	18.8804	Rilevato	0	35	20.5302	21.6087	37.0325	0	37.0325	44.0537	44.0537
23	0.364436	15.8823	19.8499	Rilevato	0	35	20.4951	21.5717	36.969	0	36.969	44.3679	44.3679
24	0.364436	16.6292	20.8254	Rilevato	0	35	21.2383	22.3539	38.3097	0	38.3097	46.3881	46.3881
25	0.364436	17.3268	21.8072	Rilevato	0	35	21.8995	23.0499	39.5024	0	39.5024	48.2648	48.2648
26	0.364436	17.974	22.7959	Rilevato	0	35	22.4795	23.6603	40.5486	0	40.5486	49.9962	49.9962
27	0.364436	18.5697	23.7917	Rilevato	0	35	22.9784	24.1855	41.4487	0	41.4487	51.5794	51.5794
28	0.364436	19.1129	24.7953	Rilevato	0	35	23.3969	24.6259	42.2034	0	42.2034	53.0119	53.0119
29	0.364436	19.6022	25.807	Rilevato	0	35	23.7349	24.9817	42.813	0	42.813	54.2905	54.2905
30	0.364436	20.0362	26.8275	Rilevato	0	35	23.9928	25.2531	43.2781	0	43.2781	55.4122	55.4122
31	0.364436	20.4136	27.8572	Rilevato	0	35	24.1706	25.4403	43.599	0	43.599	56.3736	56.3736
32	0.364436	20.7326	28.8968	Rilevato	0	35	24.2684	25.5432	43.7753	0	43.7753	57.1704	57.1704
33	0.364436	20.9916	29.947	Rilevato	0	35	24.2861	25.5618	43.8073	0	43.8073	57.7989	57.7989
34	0.364436	21.1887	31.0083	Rilevato	0	35	24.2234	25.4959	43.6942	0	43.6942	58.2539	58.2539
35	0.364436	21.3217	32.0817	Rilevato	0	35	24.0804	25.3453	43.4362	0	43.4362	58.531	58.531
36	0.364436	21.3884	33.1677	Rilevato	0	35	23.8564	25.1096	43.0322	0	43.0322	58.6242	58.6242
37	0.364436	21.3864	34.2675	Rilevato	0	35	23.5513	24.7884	42.4817	0	42.4817	58.5277	58.5277
38	0.364436	21.313	35.3817	Rilevato	0	35	23.1644	24.3812	41.784	0	41.784	58.2349	58.2349
39	0.364436	21.1653	36.5117	Rilevato	0	35	22.6952	23.8874	40.9377	0	40.9377	57.7385	57.7385
40	0.364436	20.9398	37.6583	Rilevato	0	35	22.1431	23.3063	39.9418	0	39.9418	57.0303	57.0303
41	0.364436	20.6331	38.823	Rilevato	0	35	21.5072	22.637	38.7948	0	38.7948	56.1013	56.1013
42	0.364436	20.2412	40.007	Rilevato	0	35	20.7868	21.8787	37.4954	0	37.4954	54.9419	54.9419
43	0.364436	19.5194	41.212	Rilevato	0	35	19.7381	20.7749	35.6035	0	35.6035	52.8902	52.8902
44	0.364436	17.4431	42.4396	Rilevato	0	35	17.3569	18.2687	31.3086	0	31.3086	47.1797	47.1797
45	0.364436	15.084	43.6918	Rilevato	0	35	14.7595	15.5348	26.6232	0	26.6232	40.7236	40.7236
46	0.364436	12.6182	44.9707	Rilevato	0	35	12.1314	12.7687	21.8828	0	21.8828	34.0018	34.0018
47	0.364436	10.0384	46.2788	Rilevato	0	35	9.4744	9.97209	17.0899	0	17.0899	26.997	26.997
48	0.364436	7.33633	47.6189	Rilevato	0	35	7.67142	8.0744	13.8377	0	13.8377	22.2446	22.2446
49	0.364436	4.50248	48.9944	Rilevato	0	35	5.96672	6.28015	10.7628	0	10.7628	17.6254	17.6254
50	0.364436	1.52566	50.409	Rilevato	0	35	3.19664	3.36456	5.76611	0	5.76611	9.63142	9.63142

C1 H=8.5 m - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.03725

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.279826	0.00467922	-0.351163	Limo 1	55.0017	0	44.1887	45.8347	0.340838	0	0.340838	0.0700043	0.0700043
2	0.279826	0.00477377	0.351163	Limo 1	55.0017	0	44.1887	45.8347	-0.308813	0	-0.308813	-0.0379794	-0.0379794
3	0.364447	0.833494	1.15977	Rilevato	0	35	1.20322	1.24804	2.13886	0	2.13886	2.16322	2.16322
4	0.364447	2.44464	2.07486	Rilevato	0	35	3.49187	3.62194	6.20721	0	6.20721	6.33371	6.33371
5	0.364447	4.01541	2.99048	Rilevato	0	35	5.67564	5.88706	10.0891	0	10.0891	10.3856	10.3856
6	0.364447	5.54573	3.90687	Rilevato	0	35	7.75749	8.04646	13.7898	0	13.7898	14.3196	14.3196
7	0.364447	7.03546	4.82426	Rilevato	0	35	9.74018	10.103	17.3142	0	17.3142	18.1363	18.1363
8	0.364447	8.48447	5.74289	Rilevato	0	35	11.6261	12.0592	20.6668	0	20.6668	21.8361	21.8361
9	0.364447	9.89258	6.66301	Rilevato	0	35	13.4178	13.9176	23.8517	0	23.8517	25.4192	25.4192
10	0.364447	11.2596	7.58485	Rilevato	0	35	15.1174	15.6805	26.8729	0	26.8729	28.8859	28.8859
11	0.364447	12.5852	8.50868	Rilevato	0	35	16.7268	17.3499	29.7338	0	29.7338	32.2363	32.2363
12	0.364447	13.8691	9.43474	Rilevato	0	35	18.248	18.9277	32.4379	0	32.4379	35.4702	35.4702
13	0.364447	15.1111	10.3633	Rilevato	0	35	19.6825	20.4157	34.9879	0	34.9879	38.5873	38.5873
14	0.364447	16.3107	11.2946	Rilevato	0	35	21.0322	21.8156	37.3871	0	37.3871	41.5877	41.5877
15	0.364447	17.4677	12.229	Rilevato	0	35	22.2983	23.1289	39.6379	0	39.6379	44.4707	44.4707
16	0.364447	18.5814	13.1666	Rilevato	0	35	23.4823	24.357	41.7424	0	41.7424	47.2357	47.2357
17	0.364447	19.3434	14.1079	Rilevato	0	35	24.1998	25.1012	43.0179	0	43.0179	49.1	49.1
18	0.364447	18.818	15.0531	Rilevato	0	35	23.3057	24.1738	41.4285	0	41.4285	47.6964	47.6964
19	0.364447	18.1168	16.0025	Rilevato	0	35	22.2107	23.038	39.4822	0	39.4822	45.852	45.852
20	0.364447	17.3702	16.9564	Rilevato	0	35	21.0795	21.8647	37.4712	0	37.4712	43.8983	43.8983
21	0.364447	16.5776	17.9152	Rilevato	0	35	19.9127	20.6544	35.397	0	35.397	41.8345	41.8345
22	0.364447	15.7498	18.8792	Rilevato	0	35	18.7244	19.4219	33.2847	0	33.2847	39.6879	39.6879
23	0.364447	15.8899	19.8488	Rilevato	0	35	18.6961	19.3925	33.2345	0	33.2345	39.9835	39.9835
24	0.364447	16.6369	20.8243	Rilevato	0	35	19.3714	20.093	34.4349	0	34.4349	41.8028	41.8028
25	0.364447	17.3346	21.8062	Rilevato	0	35	19.9718	20.7158	35.5024	0	35.5024	43.4931	43.4931
26	0.364447	17.9818	22.7949	Rilevato	0	35	20.498	21.2615	36.4376	0	36.4376	45.052	45.052
27	0.364447	18.5777	23.7908	Rilevato	0	35	20.9502	21.7306	37.2415	0	37.2415	46.4777	46.4777
28	0.364447	19.1209	24.7944	Rilevato	0	35	21.3289	22.1234	37.9145	0	37.9145	47.7673	47.7673
29	0.364447	19.6103	25.8063	Rilevato	0	35	21.6342	22.4401	38.4572	0	38.4572	48.9185	48.9185
30	0.364447	20.0444	26.8268	Rilevato	0	35	21.8665	22.681	38.8701	0	38.8701	49.9285	49.9285
31	0.364447	20.4218	27.8566	Rilevato	0	35	22.0256	22.8461	39.1532	0	39.1532	50.7938	50.7938
32	0.364447	20.7409	28.8963	Rilevato	0	35	22.1119	22.9356	39.3065	0	39.3065	51.5111	51.5111
33	0.364447	20.9999	29.9465	Rilevato	0	35	22.1252	22.9494	39.33	0	39.33	52.0765	52.0765
34	0.364447	21.197	31.0079	Rilevato	0	35	22.0654	22.8873	39.2236	0	39.2236	52.4859	52.4859
35	0.364447	21.3301	32.0813	Rilevato	0	35	21.9321	22.7491	38.9869	0	38.9869	52.7349	52.7349
36	0.364447	21.3968	33.1674	Rilevato	0	35	21.7254	22.5347	38.6195	0	38.6195	52.8186	52.8186
37	0.364447	21.3949	34.2672	Rilevato	0	35	21.4447	22.2435	38.1205	0	38.1205	52.7311	52.7311
38	0.364447	21.3215	35.3816	Rilevato	0	35	21.0897	21.8753	37.4894	0	37.4894	52.4668	52.4668
39	0.364447	21.1737	36.5116	Rilevato	0	35	20.6598	21.4294	36.7252	0	36.7252	52.0191	52.0191
40	0.364447	20.9483	37.6583	Rilevato	0	35	20.1545	20.9053	35.8271	0	35.8271	51.3809	51.3809
41	0.364447	20.6416	38.823	Rilevato	0	35	19.5731	20.3022	34.7936	0	34.7936	50.5437	50.5437
42	0.364447	20.2496	40.0072	Rilevato	0	35	18.9149	19.6195	33.6235	0	33.6235	49.499	49.499
43	0.364447	19.5241	41.2122	Rilevato	0	35	17.9549	18.6237	31.9168	0	31.9168	47.6419	47.6419
44	0.364447	17.4445	42.4399	Rilevato	0	35	15.784	16.372	28.0579	0	28.0579	42.4909	42.4909
45	0.364447	15.0852	43.6922	Rilevato	0	35	13.4199	13.9198	23.8554	0	23.8554	36.6762	36.6762
46	0.364447	12.6192	44.9712	Rilevato	0	35	11.0287	11.4395	19.6047	0	19.6047	30.6223	30.6223
47	0.364447	10.0392	46.2794	Rilevato	0	35	8.61174	8.93253	15.3084	0	15.3084	24.3135	24.3135
48	0.364447	7.33698	47.6196	Rilevato	0	35	7.06764	7.33091	12.5635	0	12.5635	20.3089	20.3089
49	0.364447	4.50288	48.9952	Rilevato	0	35	5.60932	5.81827	9.97122	0	9.97122	16.4229	16.4229
50	0.364447	1.5258	50.4099	Rilevato	0	35	3.08767	3.20269	5.48871	0	5.48871	9.22238	9.22238

C4 H=10.0 m - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.08759

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.771403	5.63843	-44.1815	Limo 1	55.7496	0	42.7165	46.458	57.5262	0	57.5262	16.013	16.013
2	0.771403	16.4141	-41.5231	Limo 1	57.1823	0	43.8143	47.652	69.0017	0	69.0017	30.2066	30.2066
3	0.771403	26.2445	-38.9701	Limo 1	58.4894	0	44.8157	48.7411	79.3949	0	79.3949	43.1427	43.1427
4	0.771403	35.2319	-36.5062	Limo 1	59.6843	0	45.7313	49.7369	88.8002	0	88.8002	54.9531	54.9531
5	0.771403	43.4569	-34.1186	Limo 1	60.7779	0	46.5693	50.6483	97.2947	0	97.2947	65.7429	65.7429
6	0.771403	50.9847	-31.7967	Limo 1	61.7788	0	47.3361	51.4823	104.943	0	104.943	75.5971	75.5971
7	0.771403	57.8684	-29.532	Limo 1	62.694	0	48.0374	52.245	111.799	0	111.799	84.5851	84.5851
8	0.771403	64.1519	-27.3169	Limo 1	63.5295	0	48.6775	52.9412	117.907	0	117.907	92.7645	92.7645
9	0.771403	69.8743	-25.1453	Limo 1	64.29	0	49.2603	53.575	123.309	0	123.309	100.186	100.186
10	0.771403	79.0141	-23.0117	Limo 1	64.9797	0	49.7888	54.1498	133.437	0	133.437	112.291	112.291
11	0.771403	91.2326	-20.9115	Limo 1	65.6021	0	50.2656	54.6684	147.82	0	147.82	128.614	128.614
12	0.771403	102.967	-18.8403	Limo 1	66.1601	0	50.6932	55.1334	161.577	0	161.577	144.28	144.28
13	0.771403	114.235	-16.7943	Limo 1	66.6561	0	51.0732	55.5467	174.728	0	174.728	159.314	159.314
14	0.771403	125.053	-14.7702	Limo 1	67.0923	0	51.4074	55.9102	187.292	0	187.292	173.738	173.738
15	0.771403	135.435	-12.7649	Limo 1	67.4704	0	51.6972	56.2254	199.279	0	199.279	187.567	187.567
16	0.771403	145.391	-10.7753	Limo 1	67.792	0	51.9436	56.4933	210.704	0	210.704	200.818	200.818
17	0.771403	154.93	-8.7988	Limo 1	68.0582	0	52.1476	56.7152	221.575	0	221.575	213.503	213.503
18	0.771403	164.061	-6.83282	Limo 1	68.27	0	52.3099	56.8917	231.897	0	231.897	225.629	225.629
19	0.771403	172.445	-4.8749	Limo 1	68.4283	0	52.4312	57.0236	241.208	0	241.208	236.736	236.736
20	0.771403	175.071	-2.92268	Limo 1	68.5334	0	52.5117	57.1112	242.65	0	242.65	239.969	239.969
21	0.771403	175.466	-0.97385	Limo 1	68.5859	0	52.552	57.155	241.045	0	241.045	240.152	240.152
22	0.771403	177.363	0.97385	Limo 1	68.5859	0	52.552	57.155	241.496	0	241.496	242.39	242.39
23	0.771403	184.187	2.92268	Limo 1	68.5334	0	52.5117	57.1112	248.685	0	248.685	251.366	251.366
24	0.771403	190.934	4.8749	Limo 1	68.4283	0	52.4312	57.0236	255.762	0	255.762	260.234	260.234
25	0.771403	197.281	6.83282	Limo 1	68.27	0	52.3099	56.8917	262.288	0	262.288	268.556	268.556
26	0.771403	203.225	8.7988	Limo 1	68.0582	0	52.1476	56.7152	268.252	0	268.252	276.324	276.324
27	0.771403	208.76	10.7753	Limo 1	67.792	0	51.9436	56.4933	273.646	0	273.646	283.531	283.531
28	0.771403	213.879	12.7649	Limo 1	67.4704	0	51.6972	56.2254	278.456	0	278.456	290.168	290.168
29	0.771403	218.573	14.7702	Limo 1	67.0923	0	51.4074	55.9102	282.664	0	282.664	296.217	296.217
30	0.771403	222.829	16.7943	Limo 1	66.6561	0	51.0732	55.5467	286.253	0	286.253	301.667	301.667
31	0.771403	226.636	18.8403	Limo 1	66.1601	0	50.6932	55.1334	289.2	0	289.2	306.497	306.497
32	0.771403	226.307	20.9115	Limo 1	65.6021	0	50.2656	54.6684	286.458	0	286.458	305.664	305.664
33	0.771403	221.626	23.0117	Limo 1	64.9797	0	49.7888	54.1498	281.095	0	281.095	302.241	302.241
34	0.771403	216.439	25.1453	Limo 1	64.29	0	49.2603	53.575	274.263	0	274.263	297.386	297.386
35	0.771403	210.719	27.3169	Limo 1	63.5295	0	48.6775	52.9412	264.016	0	264.016	289.159	289.159
36	0.771403	204.435	29.532	Limo 1	62.694	0	48.0374	52.245	252.937	0	252.937	280.151	280.151
37	0.771403	197.551	31.7967	Limo 1	61.7788	0	47.3361	51.4823	240.964	0	240.964	270.31	270.31
38	0.771403	190.024	34.1186	Limo 1	60.7779	0	46.5693	50.6483	228.022	0	228.022	259.574	259.574
39	0.771403	181.799	36.5062	Limo 1	59.6843	0	45.7313	49.7369	214.019	0	214.019	247.866	247.866
40	0.771403	172.811	38.9701	Limo 1	58.4894	0	44.8157	48.7411	198.841	0	198.841	235.093	235.093
41	0.771403	162.981	41.5231	Limo 1	57.1823	0	43.8143	47.652	182.346	0	182.346	221.141	221.141
42	0.771403	152.205	44.1815	Limo 1	55.7496	0	42.7165	46.458	164.346	0	164.346	205.86	205.86
43	0.714731	130.62	46.8588	Rilevato	0	35	63.2262	68.7642	117.846	0	117.846	185.314	185.314
44	0.714731	119.746	49.5694	Rilevato	0	35	55.8483	60.7401	104.095	0	104.095	169.646	169.646
45	0.714731	107.739	52.4406	Rilevato	0	35	48.193	52.4142	89.8266	0	89.8266	152.498	152.498
46	0.714731	94.3628	55.5142	Rilevato	0	35	40.2369	43.7612	74.997	0	74.997	133.573	133.573
47	0.714731	79.2682	58.8521	Rilevato	0	35	31.955	34.7539	59.5605	0	59.5605	112.433	112.433
48	0.714731	61.8945	62.5541	Rilevato	0	35	23.3237	25.3666	43.4727	0	43.4727	88.3806	88.3806
49	0.714731	41.2261	66.8027	Rilevato	0	35	13.6527	14.8485	25.447	0	25.447	57.3052	57.3052
50	0.714731	14.9509	72.0168	Rilevato	0	35	3.96867	4.31629	7.39716	0	7.39716	19.6237	19.6237

C4 H=10.0 m - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.16612

Slice Number	Width [m]	Weight [kN]	Angle of Slice Base [deg]	Base Material	Base Cohesion [kPa]	Base Friction Angle [deg]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]	Base Vertical Stress [kPa]	Effective Vertical Stress [kPa]
1	0.760531	5.42847	-43.9078	Limo 1	55.732	0	39.8273	46.4434	52.7463	0	52.7463	14.4092	14.4092
2	0.760531	15.8067	-41.2736	Limo 1	57.1316	0	40.8274	47.6097	62.639	0	62.639	26.8045	26.8045
3	0.760531	25.2814	-38.7421	Limo 1	58.4094	0	41.7406	48.6745	71.5997	0	71.5997	38.1088	38.1088
4	0.760531	33.9486	-36.2976	Limo 1	59.5782	0	42.5758	49.6485	79.7069	0	79.7069	48.4346	48.4346
5	0.760531	41.8843	-33.9276	Limo 1	60.6484	0	43.3406	50.5403	87.0258	0	87.0258	57.8718	57.8718
6	0.760531	49.1502	-31.622	Limo 1	61.6283	0	44.0408	51.3569	93.6104	0	93.6104	66.493	66.493
7	0.760531	55.7967	-29.3722	Limo 1	62.5246	0	44.6814	52.1039	99.5061	0	99.5061	74.3579	74.3579
8	0.760531	61.8655	-27.1713	Limo 1	63.3431	0	45.2663	52.7859	104.751	0	104.751	81.5162	81.5162
9	0.760531	68.1597	-25.0129	Limo 1	64.0883	0	45.7988	53.4069	110.333	0	110.333	88.9639	88.9639
10	0.760531	79.4222	-22.892	Limo 1	64.7643	0	46.2819	53.9702	122.135	0	122.135	102.593	102.593
11	0.760531	91.2726	-20.8037	Limo 1	65.3744	0	46.7178	54.4786	134.709	0	134.709	116.959	116.959
12	0.760531	102.655	-18.744	Limo 1	65.9214	0	47.1088	54.9345	146.737	0	146.737	130.751	130.751
13	0.760531	113.589	-16.7092	Limo 1	66.4078	0	47.4564	55.3398	158.234	0	158.234	143.988	143.988
14	0.760531	124.087	-14.6959	Limo 1	66.8355	0	47.7621	55.6963	169.215	0	169.215	156.689	156.689
15	0.760531	134.164	-12.701	Limo 1	67.2064	0	48.027	56.0053	179.693	0	179.693	168.869	168.869
16	0.760531	143.829	-10.7216	Limo 1	67.5218	0	48.2525	56.2682	189.678	0	189.678	180.542	180.542
17	0.760531	153.092	-8.75514	Limo 1	67.7829	0	48.4391	56.4858	199.175	0	199.175	191.715	191.715
18	0.760531	161.959	-6.79902	Limo 1	67.9907	0	48.5876	56.659	208.193	0	208.193	202.401	202.401
19	0.760531	169.134	-4.85084	Limo 1	68.146	0	48.6985	56.7883	215.117	0	215.117	210.984	210.984
20	0.760531	170.496	-2.90828	Limo 1	68.2491	0	48.7723	56.8743	214.823	0	214.823	212.345	212.345
21	0.760531	170.877	-0.969055	Limo 1	68.3006	0	48.809	56.9172	213.315	0	213.315	212.49	212.49
22	0.760531	174.3	0.969055	Limo 1	68.3006	0	48.809	56.9172	215.587	0	215.587	216.412	216.412
23	0.760531	181.241	2.90828	Limo 1	68.2491	0	48.7723	56.8743	222.228	0	222.228	224.705	224.705
24	0.760531	187.802	4.85084	Limo 1	68.146	0	48.6985	56.7883	228.395	0	228.395	232.528	232.528
25	0.760531	193.978	6.79902	Limo 1	67.9907	0	48.5876	56.659	234.076	0	234.076	239.869	239.869
26	0.760531	199.763	8.75514	Limo 1	67.7829	0	48.4391	56.4858	239.265	0	239.265	246.725	246.725
27	0.760531	205.154	10.7216	Limo 1	67.5218	0	48.2525	56.2682	243.951	0	243.951	253.088	253.088
28	0.760531	210.141	12.701	Limo 1	67.2064	0	48.027	56.0053	248.124	0	248.124	258.948	258.948
29	0.760531	214.718	14.6959	Limo 1	66.8355	0	47.7621	55.6963	251.768	0	251.768	264.294	264.294
30	0.760531	218.872	16.7092	Limo 1	66.4078	0	47.4564	55.3398	254.866	0	254.866	269.112	269.112
31	0.760531	222.552	18.744	Limo 1	65.9214	0	47.1088	54.9345	257.351	0	257.351	273.336	273.336
32	0.760531	221.429	20.8037	Limo 1	65.3744	0	46.7178	54.4786	253.839	0	253.839	271.589	271.589
33	0.760531	216.905	22.892	Limo 1	64.7643	0	46.2819	53.9702	250.019	0	250.019	269.562	269.562
34	0.760531	211.892	25.0129	Limo 1	64.0883	0	45.7988	53.4069	243.646	0	243.646	265.015	265.015
35	0.760531	206.366	27.1713	Limo 1	63.3431	0	45.2663	52.7859	234.541	0	234.541	257.776	257.776
36	0.760531	200.298	29.3722	Limo 1	62.5246	0	44.6814	52.1039	224.705	0	224.705	249.853	249.853
37	0.760531	193.651	31.622	Limo 1	61.6283	0	44.0408	51.3569	214.083	0	214.083	241.2	241.2
38	0.760531	186.385	33.9276	Limo 1	60.6484	0	43.3406	50.5403	202.612	0	202.612	231.766	231.766
39	0.760531	178.449	36.2976	Limo 1	59.5782	0	42.5758	49.6485	190.209	0	190.209	221.481	221.481
40	0.760531	169.782	38.7421	Limo 1	58.4094	0	41.7406	48.6745	176.777	0	176.777	210.268	210.268
41	0.760531	160.308	41.2736	Limo 1	57.1316	0	40.8274	47.6097	162.193	0	162.193	198.027	198.027
42	0.760531	149.929	43.9078	Limo 1	55.732	0	39.8273	46.4434	146.294	0	146.294	184.631	184.631
43	0.718424	131.318	46.5845	Rilevato	0	35	54.7144	63.8036	109.346	0	109.346	167.173	167.173
44	0.718424	120.431	49.3205	Rilevato	0	35	48.4349	56.4809	96.7954	0	96.7954	153.147	153.147
45	0.718424	108.401	52.2188	Rilevato	0	35	41.8979	48.858	83.7318	0	83.7318	137.783	137.783
46	0.718424	94.9887	55.3217	Rilevato	0	35	35.0802	40.9077	70.1066	0	70.1066	120.81	120.81
47	0.718424	79.8398	58.692	Rilevato	0	35	27.955	32.5989	55.8673	0	55.8673	101.831	101.831
48	0.718424	62.3862	62.4315	Rilevato	0	35	20.4948	23.8994	40.9582	0	40.9582	80.2137	80.2137
49	0.718424	41.5948	66.7264	Rilevato	0	35	12.0261	14.0239	24.0338	0	24.0338	51.9936	51.9936
50	0.718424	15.0976	72.0076	Rilevato	0	35	3.48825	4.06772	6.97116	0	6.97116	17.7118	17.7118

Interslice Data

C1 H=8.5 m - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.05253

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	42.1913	-7.1e-15	0	0	0
2	42.4721	-0.0017264	12.225	0	0
3	42.7528	-1.42109e-14	24.45	0	0
4	43.1173	0.00739232	24.8223	0	0
5	43.4817	0.0206096	25.8644	0	0
6	43.8461	0.0396619	27.4902	0	0
7	44.2106	0.0645639	29.6179	0	0
8	44.575	0.0953349	32.17	0	0
9	44.9394	0.131999	35.073	0	0
10	45.3039	0.174584	38.2568	0	0
11	45.6683	0.223124	41.6551	0	0
12	46.0328	0.277658	45.2048	0	0
13	46.3972	0.338228	48.8461	0	0
14	46.7616	0.404884	52.5219	0	0
15	47.1261	0.477681	56.1784	0	0
16	47.4905	0.556678	59.7642	0	0
17	47.8549	0.641942	63.231	0	0
18	48.2194	0.733546	66.4814	0	0
19	48.5838	0.831567	69.2972	0	0
20	48.9482	0.936094	71.6763	0	0
21	49.3127	1.04722	73.6413	0	0
22	49.6771	1.16504	75.2163	0	0
23	50.0415	1.28968	76.4286	0	0
24	50.406	1.42124	77.3656	0	0
25	50.7704	1.55986	78.0483	0	0
26	51.1349	1.70568	78.449	0	0
27	51.4993	1.85884	78.5428	0	0
28	51.8637	2.01952	78.3067	0	0
29	52.2282	2.18787	77.7205	0	0
30	52.5926	2.3641	76.7663	0	0
31	52.957	2.54841	75.4289	0	0
32	53.3215	2.74102	73.6957	0	0
33	53.6859	2.94218	71.5566	0	0
34	54.0503	3.15213	69.0047	0	0
35	54.4148	3.37118	66.0358	0	0
36	54.7792	3.59963	62.6491	0	0
37	55.1437	3.83782	58.8469	0	0
38	55.5081	4.08612	54.6353	0	0
39	55.8725	4.34493	50.0242	0	0
40	56.237	4.61472	45.0277	0	0
41	56.6014	4.89596	39.6646	0	0
42	56.9658	5.18922	33.9586	0	0
43	57.3303	5.49509	27.9392	0	0
44	57.6947	5.81426	21.7185	0	0
45	58.0591	6.1475	15.7786	0	0
46	58.4236	6.49566	10.304	0	0
47	58.788	6.85973	5.43312	0	0
48	59.1524	7.24081	1.31898	0	0
49	59.5169	7.64018	-2.18227	0	0
50	59.8813	8.05933	-4.992	0	0
51	60.2458	8.5	0	0	0

C1 H=8.5 m - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.03725

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	42.1942	-7.1e-15	0	0	0
2	42.474	-0.00171506	12.3647	0	0
3	42.7539	-3.55271e-15	24.7293	0	0
4	43.1183	0.00737806	25.0645	0	0
5	43.4828	0.0205816	25.9984	0	0
6	43.8472	0.0396207	27.4531	0	0
7	44.2117	0.0645101	29.3546	0	0
8	44.5761	0.095269	31.6329	0	0
9	44.9405	0.131921	34.2215	0	0
10	45.305	0.174495	37.0572	0	0
11	45.6694	0.223025	40.08	0	0
12	46.0339	0.277548	43.2331	0	0
13	46.3983	0.338109	46.4625	0	0
14	46.7628	0.404756	49.7169	0	0
15	47.1272	0.477544	52.9477	0	0
16	47.4917	0.556533	56.1088	0	0
17	47.8561	0.641789	59.1566	0	0
18	48.2206	0.733385	62.0044	0	0
19	48.585	0.8314	64.4612	0	0
20	48.9495	0.935921	66.5265	0	0
21	49.3139	1.04704	68.2208	0	0
22	49.6784	1.16486	69.5665	0	0
23	50.0428	1.28949	70.5882	0	0
24	50.4072	1.42105	71.3609	0	0
25	50.7717	1.55967	71.9003	0	0
26	51.1361	1.70548	72.1818	0	0
27	51.5006	1.85864	72.1829	0	0
28	51.865	2.01931	71.8836	0	0
29	52.2295	2.18767	71.2657	0	0
30	52.5939	2.3639	70.3134	0	0
31	52.9584	2.54821	69.0134	0	0
32	53.3228	2.74082	67.3546	0	0
33	53.6873	2.94197	65.3284	0	0
34	54.0517	3.15193	62.9288	0	0
35	54.4162	3.37098	60.1524	0	0
36	54.7806	3.59943	56.9989	0	0
37	55.1451	3.83762	53.4708	0	0
38	55.5095	4.08593	49.574	0	0
39	55.8739	4.34475	45.3179	0	0
40	56.2384	4.61454	40.7156	0	0
41	56.6028	4.89579	35.7845	0	0
42	56.9673	5.18906	30.5465	0	0
43	57.3317	5.49494	25.0285	0	0
44	57.6962	5.81413	19.3344	0	0
45	58.0606	6.14738	13.9046	0	0
46	58.4251	6.49556	8.90529	0	0
47	58.7895	6.85964	4.46177	0	0
48	59.154	7.24073	0.712061	0	0
49	59.5184	7.64013	-2.50048	0	0
50	59.8829	8.0593	-5.10878	0	0
51	60.2473	8.5	0	0	0

C4 H=10.0 m - Master Scenario

Global Minimum Query (bishop simplified) - Safety Factor: 1.08759

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	33.5764	-1.29862e-14	0	0	0
2	34.3478	-0.749673	75.4566	0	0
3	35.1192	-1.43271	154.579	0	0
4	35.8906	-2.05671	235.806	0	0
5	36.662	-2.62765	317.906	0	0
6	37.4334	-3.15029	399.899	0	0
7	38.2048	-3.62852	480.992	0	0
8	38.9762	-4.06553	560.539	0	0
9	39.7476	-4.46397	638.01	0	0
10	40.519	-4.82606	712.973	0	0
11	41.2904	-5.15369	786.406	0	0
12	42.0618	-5.44844	858.714	0	0
13	42.8332	-5.71165	929.021	0	0
14	43.6046	-5.94447	996.532	0	0
15	44.376	-6.14785	1060.52	0	0
16	45.1474	-6.32261	1120.33	0	0
17	45.9188	-6.46942	1175.34	0	0
18	46.6902	-6.58883	1224.98	0	0
19	47.4616	-6.68126	1268.72	0	0
20	48.2331	-6.74705	1306.06	0	0
21	49.0045	-6.78643	1336.87	0	0
22	49.7759	-6.79955	1361.27	0	0
23	50.5473	-6.78643	1379.13	0	0
24	51.3187	-6.74705	1389.58	0	0
25	52.0901	-6.68126	1392.2	0	0
26	52.8615	-6.58883	1386.6	0	0
27	53.6329	-6.46942	1372.44	0	0
28	54.4043	-6.32261	1349.38	0	0
29	55.1757	-6.14785	1317.06	0	0
30	55.9471	-5.94447	1275.19	0	0
31	56.7185	-5.71165	1223.43	0	0
32	57.4899	-5.44844	1161.48	0	0
33	58.2613	-5.15369	1090.93	0	0
34	59.0327	-4.82606	1012.86	0	0
35	59.8041	-4.46397	927.743	0	0
36	60.5755	-4.06553	836.919	0	0
37	61.3469	-3.62852	740.952	0	0
38	62.1183	-3.15029	640.499	0	0
39	62.8897	-2.62765	536.345	0	0
40	63.6611	-2.05671	429.433	0	0
41	64.4325	-1.43271	320.917	0	0
42	65.2039	-0.749673	212.238	0	0
43	65.9753	7.10543e-14	105.241	0	0
44	66.6901	0.762678	46.1824	0	0
45	67.4048	1.60158	-14.3989	0	0
46	68.1195	2.53104	-75.2958	0	0
47	68.8343	3.57153	-134.952	0	0
48	69.549	4.75412	-191.268	0	0
49	70.2637	6.13028	-241.232	0	0
50	70.9784	7.79809	-278.45	0	0
51	71.6932	10	0	0	0

C4 H=10.0 m - Scenario 2

Global Minimum Query (bishop simplified) - Safety Factor: 1.16612

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [deg]
1	34.0035	-1.30611e-14	0	0	0
2	34.764	-0.732075	68.3049	0	0
3	35.5245	-1.3996	139.428	0	0
4	36.2851	-2.00982	212.081	0	0
5	37.0456	-2.56843	285.25	0	0
6	37.8061	-3.08002	358.124	0	0
7	38.5667	-3.54831	430.045	0	0
8	39.3272	-3.97636	500.481	0	0
9	40.0877	-4.36674	568.992	0	0
10	40.8483	-4.72159	635.475	0	0
11	41.6088	-5.04272	701.157	0	0
12	42.3693	-5.33168	765.57	0	0
13	43.1298	-5.58975	827.972	0	0
14	43.8904	-5.81806	887.692	0	0
15	44.6509	-6.01752	944.117	0	0
16	45.4114	-6.18893	996.683	0	0
17	46.172	-6.33293	1044.87	0	0
18	46.9325	-6.45006	1088.2	0	0
19	47.693	-6.54073	1126.21	0	0
20	48.4536	-6.60527	1158.52	0	0
21	49.2141	-6.64391	1185.16	0	0
22	49.9746	-6.65677	1206.22	0	0
23	50.7352	-6.64391	1221.4	0	0
24	51.4957	-6.60527	1229.96	0	0
25	52.2562	-6.54073	1231.6	0	0
26	53.0168	-6.45006	1225.98	0	0
27	53.7773	-6.33293	1212.82	0	0
28	54.5378	-6.18893	1191.82	0	0
29	55.2983	-6.01752	1162.7	0	0
30	56.0589	-5.81806	1125.18	0	0
31	56.8194	-5.58975	1079.01	0	0
32	57.5799	-5.33168	1023.94	0	0
33	58.3405	-5.04272	961.762	0	0
34	59.101	-4.72159	892.809	0	0
35	59.8615	-4.36674	817.872	0	0
36	60.6221	-3.97636	738.035	0	0
37	61.3826	-3.54831	653.797	0	0
38	62.1431	-3.08002	565.735	0	0
39	62.9037	-2.56843	474.539	0	0
40	63.6642	-2.00982	381.034	0	0
41	64.4247	-1.3996	286.228	0	0
42	65.1853	-0.732075	191.375	0	0
43	65.9458	7.4607e-14	98.0723	0	0
44	66.6642	0.759301	39.9067	0	0
45	67.3826	1.59515	-19.4532	0	0
46	68.1011	2.52197	-78.8828	0	0
47	68.8195	3.56034	-136.928	0	0
48	69.5379	4.74157	-191.62	0	0
49	70.2563	6.11763	-240.121	0	0
50	70.9748	7.78791	-276.2	0	0
51	71.6932	10	0	0	0

Discharge Sections

Entity Information

- **C1 H=8.5 m**

  Shared Entities

Type	Coordinates (x,y)
External Boundary	141.7, -7.1e-15 86.45, 7.11085e-15 81.2, 3.5 79.2, 3.5 71.7, 8.5 69.85, 8.5 59.35, 8.5 57.5, 8.5 50, 3.5 48, 3.5 42.75, -7.1e-15 0, -7.1e-15 0, -3 0, -6.5 0, -8.5 0, -13 0, -20.5 0, -25 0, -28 -1.42e-14, -30 141.7, -30 141.7, -28 141.7, -25 141.7, -20.5 141.7, -13 141.7, -8.5 141.7, -6.5 141.7, -3
Material Boundary	42.75, -7.1e-15 86.45, 7.11085e-15
Material Boundary	0, -3 141.7, -3
Material Boundary	0, -6.5 141.7, -6.5
Material Boundary	0, -8.5 141.7, -8.5
Material Boundary	0, -13 141.7, -13
Material Boundary	0, -20.5 141.7, -20.5
Material Boundary	0, -25 141.7, -25
Material Boundary	0, -28 141.7, -28

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario	Scenario 2
Water Table	0, -10 141.7, -10	Assigned to: Rilevato Limo 1 Limo 2 Argilla 1 Argilla 2 Argilla 3 ... and 2 more	Assigned to: Rilevato Limo 1 Limo 2 Argilla 1 Argilla 2 Argilla 3 ... and 2 more
Distributed Load	69.85, 8.5 59.35, 8.5	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No

C4 H=10.0 m

Shared Entities

Type	Coordinates (x,y)
External Boundary	0, -7.1e-15 0, -15 0, -18.2 -1.42e-14, -30 130.2, -30 130.2, -18.2 130.2, -15 130.2, -7.1e-15 88.7, -7.1e-15 81.2, 5 79.2, 5 71.7, 10 70.6, 10 58.6, 10 57.5, 10 50, 5 48, 5 40.5, -1.42e-14
Material Boundary	40.5, -1.42e-14 88.7, -7.1e-15
Material Boundary	0, -18.2 130.2, -18.2
Material Boundary	0, -15 130.2, -15

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario	Scenario 2
Water Table	0, -10 130.2, -10	Assigned to: Rilevato Limo 1 Ghiaia Substrato	Assigned to: Rilevato Limo 1 Ghiaia Substrato
Distributed Load	70.6, 10 58.6, 10	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No	Constant DistributionOrientation: Normal to boundaryMagnitude: 6 kN/m2Creates Excess Pore Pressure: No